

Proposition 13 Urban Water Conservation Grant Proposal

Project Title:

**Water- and Energy Use Efficiency Improvement
Project at Petaluma Poultry Processors As Leadoff Project for
City of Petaluma's Industrial Water Efficiency Program**

Dated: March 1, 2002

Submitted by the City of Petaluma
in response to:

Consolidated Water Use Efficiency 2002
Proposal Solicitation Package
Dated: January 4, 2002

Support Letters for this project have been submitted by:*

Petaluma Poultry Processors
Congresswoman Lynn Woolsey (California 6th Congressional District)
California Energy Commission
Sonoma County Supervisor Mike Kerns
Sonoma County Water Agency
The Bay Institute of San Francisco
California State Coastal Conservancy
Petaluma Chamber of Commerce
WaterKeepers
Friends of Russian River
Petaluma Wetlands Park Alliance
Petaluma River Council
Petaluma Tomorrow
Petaluma River Authority

** additional support letters, submitted after February 27, 2002, will be sent directly to DWR*

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* modified to include certification statements required in Proposal Part Two, Section A.4

**Consolidated Water Use Efficiency 2002 PSP
Proposal Part One:**

A. Project Information Form

1. Applying for (select one):

- ☒ (a) Prop 13 Urban Water Conservation
Capital Outlay Grant
- ☐ (b) Capital Outlay Feasibility Study Grant
- ☐ (c) DWR Water Use Efficiency Project

2. Principal applicant (Organization or
or affiliation):

City of Petaluma

3. Project Title:

**Water- and Energy Use Efficiency
Improvement Project at Petaluma Poultry
Processors As Leadoff Project for City of
Petaluma's Industrial Water Efficiency Progra**

4. Person authorized to sign and
submit Proposal:

Name: **Mr. Thomas S. Hargis, P.E.**
Title: **Director, City of Petaluma,
Dept. of Water Resources and
Conservation**

Mailing Address: **P.O. Box 61
Petaluma, CA 94953-0061**

Telephone: **707-778-4309**
Fax: **707-776-3635**
E-mail: **thargis@petaluma.ci.us.**

5. Contact person (if different):

SAME AS ABOVE

6. Funds requested (dollar amount):

\$1,100,000

7. Applicant funds pledged (dollar amount):

\$1,100,000

8. Total project costs (dollar amount):

\$2,200,000

9. Estimated total quantifiable project benefits (dollar
amount):

\$2,400,000

Percentage of benefit to be accrued by applicant:

58%

Percentage of benefit to be accrued by CALFED or
others:

**42% (Petaluma Poultry
Processors, Inc.)**

**Consolidated Water Use Efficiency 2002 PSP
Proposal Part One:**

A. Project Information Form (continued)

-
10. Estimated annual amount of water to be saved (acre-feet): 186 acre-feet
Estimated total amount of water to be saved (acre-feet): 1,721 acre-feet
Over 10 years
Estimated benefits to be realized in terms of water quality,
instream flow, other: **Elimination of an estimated 6 tons/year of chlorinated disinfection
byproducts from POTW effluent that reach San Francisco Bay.**
11. Duration of project (month/year to month/year): October 2002 to December 2003
12. State Assembly District where the project is to be conducted: 6th
13. State Senate District where the project is to be conducted: 3rd
14. Congressional district(s) where the project is to be conducted: 6th
15. County where the project is to be conducted: Sonoma
16. Date most recent Urban Water Management Plan submitted
to the Department of Water Resources: Spring 2001 (Sonoma County Water
Agency "UWMP 2000")
17. Type of applicant (select one):
Prop 13 Urban Grants and Prop 13
Agricultural Feasibility Study Grants
- DWR WUE Projects: the above
entities (a) through (f) or:
18. Project focus:
- ☒ (a) city
 - ☐ (b) county
 - ☐ (c) city and county
 - ☐ (d) joint power authority
 - ☐ (e) other political subdivision of the
State, including public water district
 - ☐ (f) incorporated mutual water company
 - ☐ (g) investor-owned utility
 - ☐ (h) non-profit organization
 - ☐ (i) tribe
 - ☐ (J) university
 - ☐ (k) state agency
 - ☐ (i) federal agency
 - ☐ (a) agricultural
 - ☒ (b) urban

**Consolidated Water Use Efficiency 2002 PSP Proposal
Part One:**

A . Project Information Form (continued)

19. Project type (select one):
Prop 13 Urban Grant or Prop 13
Agricultural Feasibility Study Grant
capital outlay project related to:

- ☐ (a) implementation of Urban Best Management Practices
- ☐ (b) implementation of Agricultural Efficient Water Management Practices
- ☐ (c) implementation of Quantifiable Objectives (include QO number(s))

☒ (d) other (specify):

Implementation of Citywide Industrial Water Efficiency Program for CII Water Users

DWR WUE Project related to:

- ☐ (e) implementation of Urban Best Management Practices
- ☐ (f) implementation of Agricultural Efficient Water Management Practices
- ☐ (g) implementation of Quantifiable Objectives (include QO number(s))
- ☐ (h) innovative projects (initial investigation of new technologies, methodologies, approaches, or institutional frameworks)
- ☐ (i) research or pilot projects
- ☐ (j) education or public information programs
- ☐ (k) other (specify)

20. Do the actions in this proposal involve physical changes in land use, or potential future changes in la

-
- ☐ (a) yes
- ☒ (b) no

If yes, the applicant must complete the CALFED PSP Land Use Checklist found at http://calfed.water.ca.gov/environmental_doc.html and submit it with the proposal.

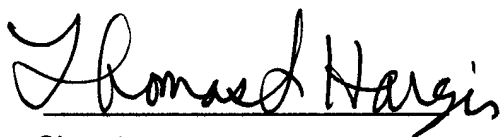
Consolidated Water Use Efficiency 2002 PSP

Proposal Part One:

B. Signature & Certification Page

By signing below, the official declares the following:

- 1) The truthfulness of all representations in the proposal;
- 2) The individual signing the forms is authorized to submit the proposal on behalf of the applicant;
- 3) The individual signing the form read and understood the conflict of interest confidentiality section and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant;
- 4) The individual has assisted in the preparation and reviewed the preliminary plans and specifications for the project as presented herein; and certifies that the project, as presented herein, is feasible; and
- 5) The individual is a Registered Professional Civil Engineer in the State of California (Registration No. C22366)



Signature

Thomas S. Hargis, P.E **February 28, 2002**

Director, Dept. of
Water Resources
And Conservation
City of Petaluma

Date

Project Summary

The City of Petaluma is initiating an Industrial Water Efficiency Program (IWEP). The purpose of this program is to offset all increases in demand over the next ten (10) years by commercial, industrial and institutional (CII) water users by implementing a range of water efficiency improvements. If this IWEP is successful, the City will demonstrate the ability to “hold the flow” on increasing water supply, while allowing and supporting economic growth. The overall goal of the proposed IWEP is to save 1,100 acre-feet per (AFY) by the tenth year of the program.

The City has identified and selected a \$2.2 million water- and energy-use efficiency improvement project at Petaluma Poultry Processors, Inc. (PPP) as the leadoff project for the City’s IWEP. The \$1.1 million in Proposition 13 Urban Grant funds that the City is requesting with this proposal will be used to fund the installation of water recycling and reuse systems on PPP’s premises. These systems represent 50% of the capital costs for the overall project. These systems will improve water-use efficiency at PPP by 60% by reducing net water use from 7.0 gallons/bird to 2.8 gallons/bird. The other 50% in capital costs for this project has been or will be provided by PPP. PPP will incur and pay all O&M costs for operating the water recycling/reuse systems over the 10-year project life. The City will incur and pay an estimated \$100,000 over the project’s life to monitor the project’s performance and publicize its benefits of the City’s leadoff IWEP project

When fully operational in year 4, this water recycling/reuse project at PPP is expected to save the City 186 AFY in existing and “new development” water use. Thus, the savings from this leadoff project will enable the City to achieve 17% of its total 10-year IWEP goal of 1,100 AFY. Equally important, the “new development” portion of the water savings achieved by this project will enable PPP to remain in the City’s service area and expand its production by 277%. Based on City’s proposed IWEP criteria, this project is fully compliant, and will provide the City a 1.25 benefit-to-cost ratio. Thus, this project is locally cost effective and meets the City’s dual goals of ‘holding the flow’ on CII water demand while supporting economic growth.

In addition to improving water-use efficiency at PPP by 60% and allowing a 277% production expansion, this project will improve energy-use efficiency at PPP by 8%. This improvement occurs because the electrical power required to operate the onsite water recycling and reuse systems will be more than offset by savings in refrigeration energy. This savings will be realized because 38°F chiller overflow water -- now sent down the drain -- will be saved, treated, and reused.

This project also will provide significant environmental benefits since, as part of the overall project, PPP will switch from using chlorine chemicals for sanitizing its product to using ozone. This novel change was pilot tested and approved by the USDA under a recently completed \$700,000 project funded principally by the California Energy Commission. This process change will essentially eliminate the presence of free chlorine and chlorinated byproducts in the plant’s sewerage, which goes to the City’s wastewater treatment plant and eventually reaches San Francisco Bay.

A. Scope of Work: Relevance & Importance

1. Nature, Scope and Objectives of Project

The proposed project involves the installation and operation of water recycling and reuse systems on the premises of Petaluma Poultry Processors (PPP), an existing City CII water user, for two purposes: a) to reduce PPP's present use of City water by 40%; and b) to provide a sufficient and assured increase in water so that PPP can expand its production by over 250% while remaining in the City's service area.

The scope of this project involves the installation of three (3) separate water recycling and reuse systems on the premises of PPP's existing poultry processing plant at 2700 Lakeville Highway in Petaluma. These three systems will have a combined capacity to produce 225 gallons-per-minute of reconditioned process water. The two systems whose primary purpose is water conservation will be installed, financed (using the \$1.1 million in Proposition 13 grant funds being requested hereunder) and will be initially owned by the City as part of the City's proposed INDUSTRIAL WATER EFFICIENCY PROGRAM (IWEP).¹ The third system, whose primary purpose is energy conservation, will be financed and owned by PPP.

PPP will operate the City-owned systems and be responsible for all maintenance, repairs and replacement costs under a 10-year Operating Agreement with the City. This agreement will require that certain performance objectives be met, including operation of the systems for at least 16 hours/day for 300 days/year beginning in year 4 after startup. At this operating rate, the three systems will produce 81,303 hundred cubic feet (CCF) per year (186 AFY) of reconditioned process water that will be used back within PPP's plant to replace the use of City water. The reconditioned process water will be both *recycled* (used back in the same operation as its initial use) and *reused* (used back in a different operation than its initial use). The proposed in-plant water recycling/reuse scheme is shown in Figure 1.

The project scope also includes the purchase and installation of equipment to permit operating changes that will enable PPP to increase production, save energy, and eliminate the use of chlorine chemicals as a microbicide for sanitizing the chickens produced at the plant. The \$1.1 million in capital costs for this additional equipment, which is necessary for achieving the water savings targeted under this CALFED water-use efficiency grant request and the City's IWEP, has been or will be paid for entirely by PPP as part of the cost-sharing arrangement for this project.

The U.S. Dept. of Agriculture (USDA) oversees the operation of all poultry processing plants in the United States and must approve in advance any changes in operating practices or procedures, including recycling and reusing process water. The process changes that will be made at PPP as a result of this project already have been either: a) pilot tested at PPP under USDA-approved protocols as part of a 3-year, \$700,000 R&D project funded principally by the California Energy

¹ The proposed IWEP plan is set forth in *Industrial Water Efficiency Program for the City of Petaluma*, dated February 6, 2002; prepared by Edwin Orrett, P.E. (Pacific Technology Associates), *et al.*

Commission (CEC) under the CEC's Public Interest Energy Research (PIER) program;² or b) approved by the USDA and are presently in commercial use other poultry processing plants elsewhere in the United States. The same firm (WaterTech Partners) and key principals (Ron Enzweiler, Dr. Dee Graham and Dr. Jurgen Strasser) that performed the PIER project pilot tests at PPP in 2001 will serve as External Cooperators on this CALFED/City-IWEP water-use efficiency project. Given the USDA's approval of the pilot-test protocols and the favorable results that were achieved in the PIER pilot tests, WaterTech and PPP are confident the USDA approval can be obtained for implementing the changes in PPP's operations required for implementing this full-scale water recycling/reuse project.

This project offers substantial benefits for CALFED, the City and PPP. From the perspective of the CALFED program and its objectives and the City and its proposed IWEP, this project offers the following benefits: [Note: references are to Exhibits I to IV attached at the end of this "Part Two" section of the proposal.]

- achieves a 40% reduction in PPP's current use of City water (reduced from 10,181 CCF/year to 6,087 CCF/year) (Exhibit I, line 17); this reduction exceeds the 30% goal set for existing CII facilities in the proposed IWEP;
- meets the "Hold The Flow" mandate for all CII users in Petaluma over the next 10 years by providing 81,303 CCF/year of "new water" via on-site recycling and reuse (Exhibit IV, Line 4) to support "new development" by permitting a 277% production expansion at PPP (Exhibit I, Line 6); this is an increase from 45 million lbs./year of chickens in 2000 to 125 million lbs./year in 200;
- results in the reduction of an estimated 6 tons/year of free chlorine and chlorinated disinfection byproducts (a reduction of 95% based on present operations) in PPP's discharge stream to the City's central wastewater treatment plant (Exhibit I, Line 34), from which these chemicals end up in San Francisco Bay; this reduction is achieved by replacing the use of chlorine chemicals as a water and product sanitizing agent with the use of ozone – which decomposes and does not produce toxic or environmentally damaging byproducts; and
- complies with all criteria, including positive net benefit calculation based on avoided costs, recommended in the IWEP for use by the City in providing financial incentives for Custom Projects; and
- assures PPP the water that PPP needs to expand production without having to relocate to a site outside the City's service area. [Note: Relocation within the City of Petaluma is still a viable possibility for PPP since all the City-owned equipment that will be purchased and installed at PPP's existing plant using the grant funds is relocate-able should PPP relocated within the City.]

From the perspective of PPP, this project will provide the following benefits:

² This project is described in the *Final Report for PIER Contract 500-98-030, Recycling Chiller-Bath Rinse Water in Poultry Processing*, dated February 2002; prepared under the direction of Ronald Enzweiler, P.E. (WaterTech Partners) with assistance from Dr. Dee Graham and Dr. Jurgen Strasser, *et. al.*

- provides PPP a sufficient and reliable supply of additional water to increase production by up to 277% (Exhibit I, Line 6); this production increase will be accomplished by: 1) increasing the line speed from 75 to 90 birds/minute to utilize the capacity of the new 30,000-gallon chiller; 2) adding a second shift so that production operations can be increased from 7.5 to 15 hours/day; and 3) increasing normal operations from 5 to 6 days per week (260 to 300 days/year) (Exhibit I, Lines 1,2,3 and 4);
- provides an acceptable return in investment for PPP on its \$700,000 in new investment (PPP's \$1,100,000 cost sharing commitment less the \$400,000 that PPP already spent on the new chiller) that PPP will be required to make (Exhibit IV, Line 18); this favorable return is provided by the 38% net savings in unit O&M costs (Exhibit III, Line 35) related to water, chilling and sanitizing (including a 8% net reduction in energy use; Exhibit I, Line 28)) that PPP will realize as a result of implementing his project; these saving result primarily from efficiency improvements; and
- enables PPP to become the first and only poultry processing plant in the U.S. that can claim to produce a truly organic product since no synthetic chemicals (i.e., chlorine and chlorine dioxide) will be used in the production process.³

2. Local, Regional, and Bay-Delta and State-Federal Water Issues; Project Need and Consistency with Local and Regional Water Management Plans

The City of Petaluma presently obtains approximately 90% of its water from the Russian and Eel Rivers via the Sonoma County Water Agency (SCWA), and the balance from local groundwater wells. Beginning late in 2004, tertiary effluent will enter the mix to serve irrigation needs of City parks, golf courses, and other sites.

SCWA's Urban Water Management 2000, released in Spring 2001, provides the most current presentation of regional water planning. This plan discusses the importance of water-use efficiency and attempts to minimize the need for additional new supplies. The City is preparing a Water Resources Plan as part of its new General Plan, in which water is receiving primary attention. Additionally, a major planning and design effort is accompanying the City's current process of building a Water Recycling Facility, which will provide tertiary effluent for urban reuse and allow abandoning the wastewater plant built in 1937. The former effort is attracting considerable public support due to the opportunity to develop a public wetlands park that will feature 70 acres of enhancement wetlands (to provide effluent polishing and wildlife habitat) juxtaposed with nearby tidal saltwater habitat.

Concurrent and entirely consistent with the above efforts is the City's work to intensify efforts to support water efficiency, particularly in the commercial,

³ Ozone is not considered a synthetic chemical and is specifically permitted for use as a sanitizer for certified organic products. Although ozone will be used to replace chlorine in all places where chlorine chemicals are added or used in the production process (including treating groundwater), PPP's operations (and hence its wastewater) will not be totally chlorine free since chlorine is in the incoming City water, and products containing chlorine are used for plant clean-up. Note: Organic certification entails more than just processing; strict protocols must be adhered to throughout the life of each chicken.

industrial, and institutional (CII) sector. Efforts in the latter sector offer particularly attractive economic development benefits, and water quality improvements due to the opportunity provided to cost-effectively improve production processes so as to avoid the use of potential pollutants altogether (particularly those resistant to biological treatment). Such efforts are also financially attractive from the City's perspective due to reduced demand for imported water, and the potential to defer, if not avoid, the new to eventually expand the new Water Recycling Facility.

Thus, a common theme in both the regional (SWCA) and local (City) water management plans associated with this project is the emphasis on conservation over the development of new supply sources. Hence, this proposed Proposition 13 urban water-use efficiency improvement project at PPP complies fully with the water management policies in the relevant local and regional water management plans, and will contribute to the fulfillment of these plans' objectives by producing 81,303 CCF/year (186 AFY) of industrial process water from onsite wastewater effluent.

The key state-federal water issue this project will address is the CALFED program objective to improve water quality in the San Francisco Bay-Delta. This project will contribute to improving Bay-Delta water quality by eliminating the presence of free chlorine and chlorine disinfection byproducts in PPP's sewage. Based on the amount of chlorine gas and sodium chlorite (used to produce chlorine dioxide in onsite generators) that PPP presently buys and uses in its current chlorine-based sanitizing operations, an estimated 6.3 tons/year of free chlorine and chlorinate compounds are discharged into the City sewage system by PPP.⁴

Once discharged into the City's sewage collection system, PPP's sewerage is commingled with other municipal sewage and conveyed to the City's central sewage treatment plant. Similar to virtually all municipal sewage treatment plants, the City's sewage treatment plant is only partially effective in removing chlorinated compounds. Thus, the chlorinated compounds that PPP presently discharges into the City's sewage collection system eventually end up in the effluent from the City's central sewage treatment plant, which flows into the Petaluma River. The Petaluma River is a tributary to San Pablo Bay, which itself is part of the San Francisco Bay-Delta. Even with the City's proposed new Water Recycling Facility, the presence of chlorinated compounds in sewage from industrial dischargers may present treatment and/or discharge problems for the City. Hence, the fact that this proposed Proposition 13 project will enable PPP to essentially eliminate chlorinated compounds from its sewage will have significant benefits to the City and to Bay-Delta water quality.

⁴ Prior to December 2001, chlorine and chlorine dioxide (either alone or in combination with other chemicals, such as trisodium phosphate) were the only sanitizing agents approved by the USDA for use at commercial poultry processing plants. Thus, like all other poultry processors, PPP has been required to use chlorine chemicals in its operations. In December 2001, the USDA gave general approval for the use of ozone as a sanitizing agent in poultry process. (The pilot tests results from the PIER project conducted by WaterTech Partners at PPP and petitions submitted by project team-member Dr. Dee Graham were responsible for this seminal ruling from FDA and USDA.) As part of this project, PPP will take advantage of this recent regulatory change by converting its sanitizing operations entirely to ozone. This change will make PPP the first and only poultry plant in the U.S. to use a completely chlorine-free sanitizing process.

B. Scope of Work: Technical/Scientific Merit, Feasibility, Monitoring and Assessment

1. Methods, Procedures and Facilities

The present water use by process step and the changes in PPP's operations that will be made to achieve the improvements in water- and energy-use efficiency and the production expansion targeted by this project are shown in the "before" and "after" diagrams presented in Figure 1 on the following page.

As shown in this diagram, PPP presently uses about 315 CCF per day of water in its operations. Approximately 90% of this water is obtained from PPP-owned and -operated on-site groundwater wells. The City supplies the other 10%, which was 10,181 CCF per year in 2001. (PPP is the City's 18th largest CII water user.) Since PPP's on-site groundwater production is already at the sustainable limit, any new requirements for water at PPP's plant must come from the City – or by expansion of onsite water recycling and reuse.⁵

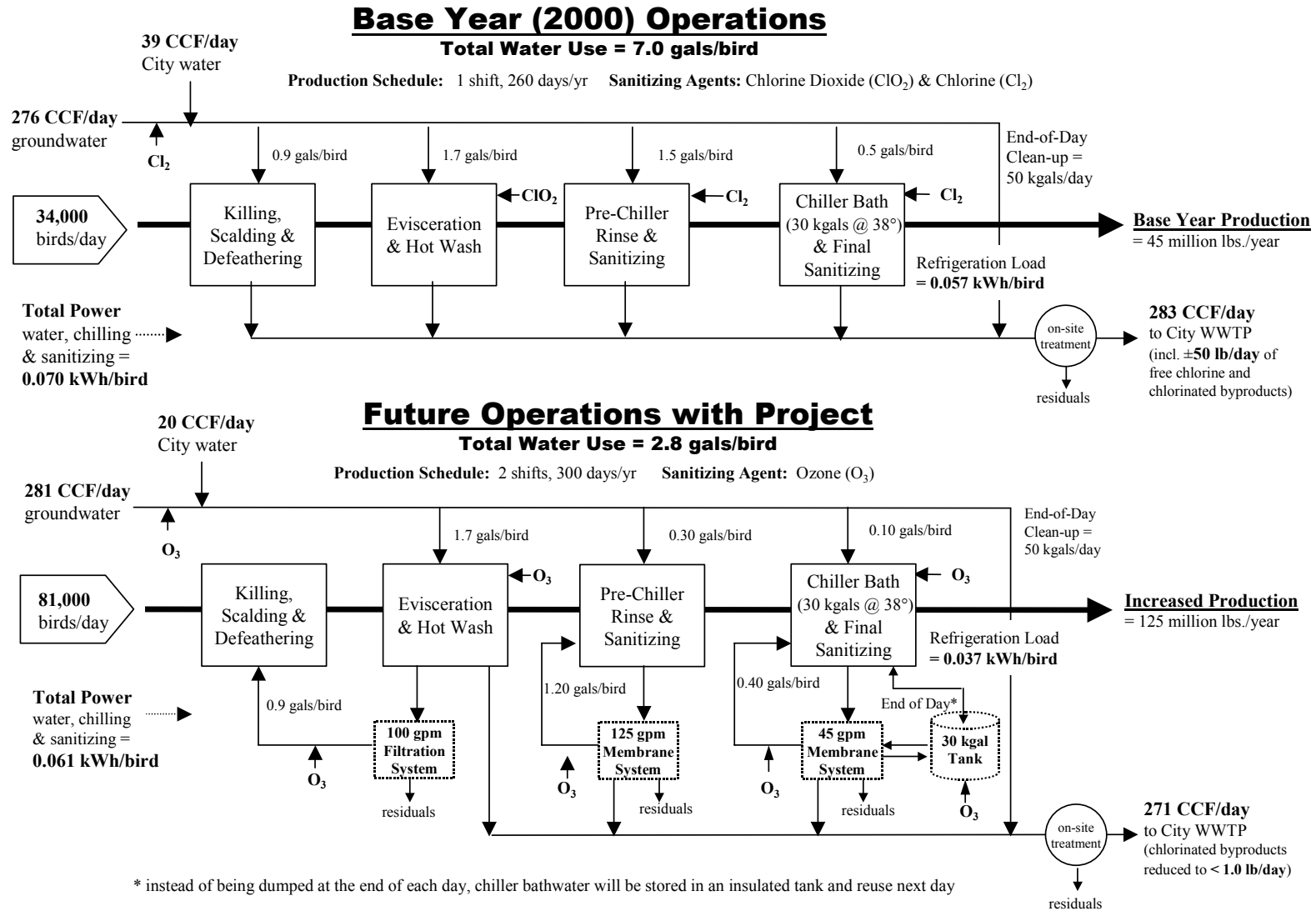
The proposed project is designed so that all future increases in PPP's water requirements — up to a 277% increase in production — can be met without the need for additional groundwater or City water; and secondly so that a 40% reduction in present City water use is achieved and maintained for the next 10 years. This water-use plan will be accomplished as follows:⁶

- The 0.9 gals/bird required in the "front-end" processing steps (killing, scalding and defeathering) will be supplied by treating and reusing approximately 53% of the 1.9 gals/bird used in the subsequent evisceration and carcass hot-washing steps. Since front-end operations are not as critical as subsequent processing steps, treatment by "medium performance" separation processes (e.g. flotation and adsorption) is adequate for this application. Poultry plants in Georgia already reuse water in this manner using the equipment described in Item 3, Exhibit II. The 100-gpm water-reuse system used for this purpose will be purchased using public-grant funds.
- The 1.5 gals/bird used in the pre-chiller bird-washer will be captured and sent to a "high performance" membrane ultrafiltration (UF) system. This UF system will recover about 80% of the rinse water and sufficiently treat it so that this water can be recycled back to the bird-washer. The key for achieving this water savings is the switch to ozone, from chlorine, as the sanitizer. (If chlorine were used, recycling would be problematic due to the build-up of chlorinated byproducts.)

⁵ Although not shown on the diagram, PPP presently reuse water from the evisceration and hot-wash steps to clean birdcages and for other non-product-contact tasks.

⁶ For obvious marketing and regulatory reasons, recycled tertiary effluent from the City's proposed new Water Recycling Facility could be not used in the direct food-contact operations that are the basis of this project. Thus, on-site recycling and reuse is the only possibility for PPP to participate in the City's IWEP.

Figure 1



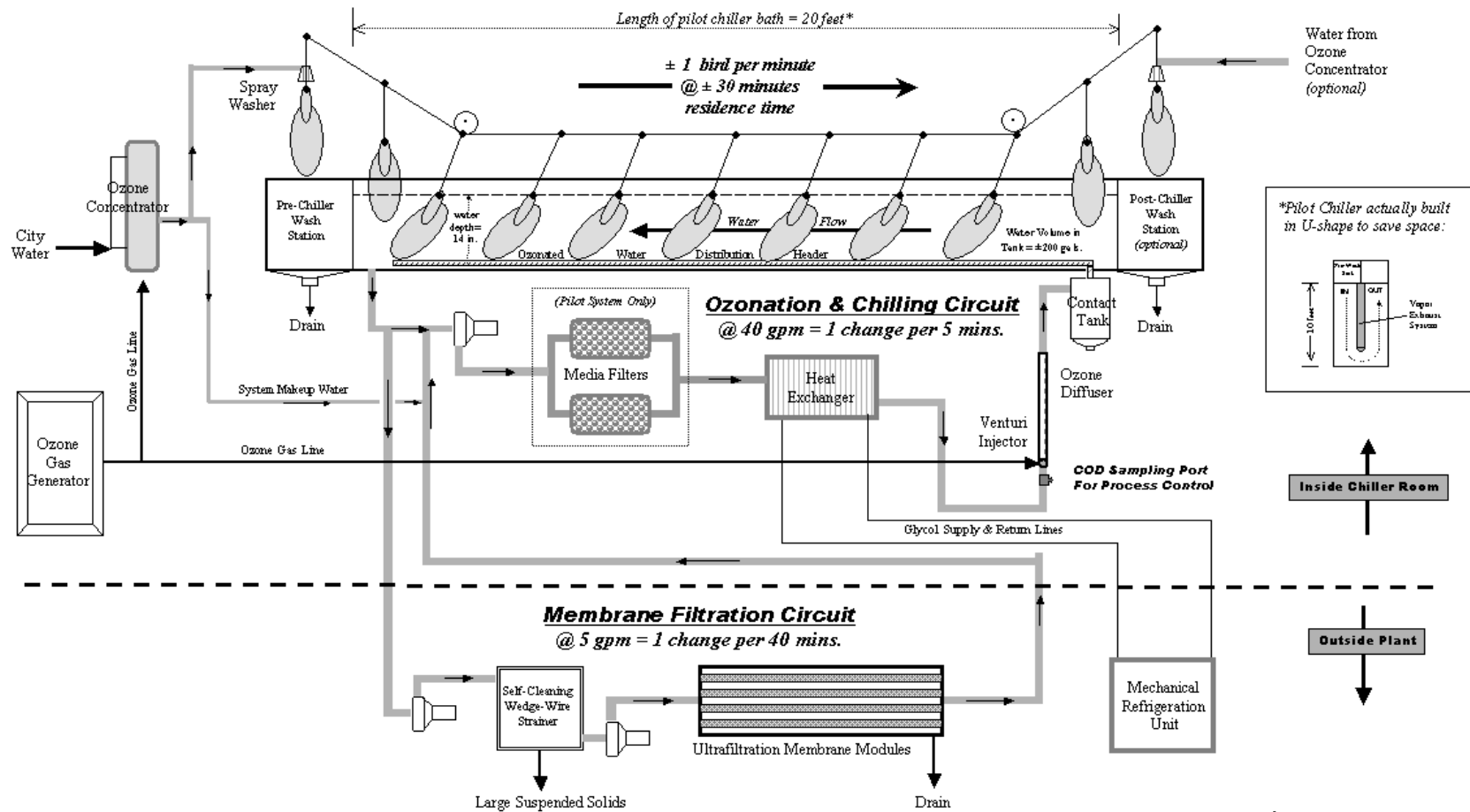
- USDA regulations require that 0.5 gals/bird of make-up water be added to the chiller bath (which is maintained at 33 to 40°F) on a continual basis. Although this overflow stream is a relatively small water loss, it represents a substantial energy loss in the form of refrigeration. Thus, the rationale for capturing, treating, and recycling this stream is driven more by energy cost savings than by water savings. Similar to recycling of the pre-chiller bird-washer rinse water, ozone must be used in place of chlorine in the chiller bath to prevent the build-up of chlorinated byproducts; and a membrane UF system is needed to achieve the required level of contaminant removal. This process change (i.e., using ozone in place of chlorine in the chiller bath and recycling the overflow water using membrane UF) was also successfully pilot tested at PPP as part of the PIER project. A process flow diagram of this novel “dual circuit” sanitizing and chilling process, which will be used commercially for the first time in this project, is shown in Figure 2 on the next page.
- An additional advantage of installing a 45-gpm membrane UF system to treat and recycle the chiller overflow water during the processing day is that this same equipment can be used at night to recondition and reuse (instead of dumping) the 30,000 gallons of 38°F chiller bathwater. The project scope includes installation of an insulated, 30,000-gallon tank for this purpose. Since the primary purpose of this equipment (items 1 and 4 in Exhibit II) is energy savings, this equipment will be funded by PPP (or possibly by a NICE³ grant from the U.S. Dept. of Energy since this process change represents a novel energy-savings technology).

Note: As indicated in Exhibit I, the *combination* of process changes that will be made as part of this project will result in an 8% net reduction in specific energy use (0.070 versus 0.064 kWh/bird) associated with water supply, chilling, wastewater treatment, and the use of sanitizing agents. This energy-efficiency gain occurs because recycling the refrigerated chiller fill-up water and overflow stream saves more energy than required to operate the three new water on-site recycling and reuse systems and to produce the 60 lb/day of onsite-produced ozone used to replace chlorine.

- The final major component of this project is the three 20-lb/day ozone generators and concentrators that will be installed onsite and used to produce ozone gas from air by the corona discharge method. As shown in Figure 1, the on-site produced ozone gas will be piped to numerous use points throughout the plant, and injected in place of chlorine in all places where chlorine chemicals are currently used. Ozone is much safer to handle and use than chlorine, and no transport or storage is required. However, during the pilot tests, fugitive ozone emissions from the pilot chiller – while significantly below the OSHA threshold for worker safety – were noticeable by personnel in the chiller room. Hence, as part of this project, a hood with an outside exhaust will be installed over the open-top chiller so that any ozone emissions will be vented outside.

Figure 2

Dual-Circuit Process for Sanitizing and Chilling Poultry Carcasses Pilot System for In-Plant Tests at Petaluma Poultry



As noted in Exhibit II, the project scope and budgetary capital cost estimated includes related ancillary work, such as buildings for housing the membrane systems, upgrades to the plant electrical system, and project management services.⁷ The latter includes an allowance for consulting services by WaterTech Partners to: 1) conducting membrane pilot tests needed for optimizing the design of the two membrane systems before selecting a vendor (vendors require pilot testing before they will give process guarantees); obtaining USDA approval for implementing the process changes at PPP associated with this project; and providing technical and administrative assistance to the City's Project Manager during the construction phase of the project.

2. Task List and Schedule

The proposed project task list and schedule for the project are shown in Figure 3 on the following page. This chart also shows the projected quarterly expenditure plan over the estimated 15-month duration of the project. This spending plan is based on the itemized capital cost estimates and the 50:50 cost sharing plan presented in Exhibit II.

As shown in Figure 3, the four major tasks will be project initiation activities (Task 1), procurement (Task 2), installation and construction (Task 3) and start-up and testing (Task 4). All the sub-tasks are self-explanatory, except perhaps for Tasks 1.7 and 4.2, "Obtain Conditional/Final USDA Approvals." In Task 1.7, WaterTech Partners (Dr. Dee Graham) will prepare protocols describing the operational changes that PPP proposes to make under this project, and the procedures that will be adopted and practices to ensure that product quality will be maintained. After providing comments and perhaps making revisions, USDA will give its conditional approval for the changes and the proposed new procedures. In Task 4.2, after the new systems are installed and operational test-runs have been made, WaterTech Partners (Dr. Dee Graham) will provide data to USDA to show that the new operating procedure are as effective as represented in the approved protocols. At this point, USDA will give PPP permission to operate the new systems on a commercial basis

As indicated in Exhibit II, the \$1.1 million in proceeds from the requested Proposition 13 grant will be use to purchase the 125-gpm ultrafiltration system that will be used to recycle the final rinse water (estimated cost: \$750,000) and the 100-gpm Zentox Cascade system (or equal) that will be used to recondition the water used for evisceration and hot washing for use in non-critical applications (estimated cost: \$350,000). Thus, if only partial grant funding is received, one of these systems could be deleted from the project scope.

⁷ Costs for monitoring and assessment (M&A) are not included in Figure 3 and Exhibits II because the M&A costs will be recurring annual costs over the 10-year life of the project beginning upon start-up. Figure 3 and Exhibit II show capital costs that will be expended prior to start-up, which is period when Proposition 13 funds will be expended. In calculating the City's benefits in Exhibit IV, only 80% of the avoided-cost value of the project is used. The other 20% of the project's inherent value is retained by the City to cover the City's administrative costs, including M&A, and to provide a savings for ratepayers.

Figure 3
Project Schedule and Quarterly Spending Plan by Task
(cost figures are \$1,000)

Legend: O=start date; X=completion date; I-K = in-kind services O -----> X Total Project Duration = 15 Months -----> X

Project Tasks:	Responsible Parties	Deliverables	Oct 02	Nov 02	Dec 02	4th 02	Jan 03	Feb 03	Mar 03	1st 03	Apr 03	May 03	Jun 03	2nd 03	Jul 03	Aug 03	Sep 03	3rd 03	Oct 03	Nov 03	Dec 03	4th 03	Task Total
1. Project Initiation						\$000				\$000				\$000				\$000				\$000	
1.1 Submit Proposal "Part Three" Items	City	required items	O---X			I-K																	\$0
1.2 Obtain City Building Permits/Approvals	PPP	copy				I-K																	\$0
1.3 Execute Operating Agreement	City & PPP	copy				I-K																	\$0
1.4 Develop Monitor & Assessment Plan	PTA	copy				\$5				\$10													\$15
1.5 Conduct Membrane Tests	Water Tech	test report								\$20													\$20
1.6 Design Plant Modifications	PPP					\$10				\$10													\$20
1.7 Obtain USDA Conditional Approvals	Water Tech	copy				\$5				\$15													\$20
2. Procurement																							\$0
2.1 Prepare & Issue Quotation Packages	Water Tech	copies								\$15													\$15
2.2 Receive & Evaluate Proposals	Water Tech	copies																					\$5
2.3 Submit Supplier Recommendations	Water Tech	copies																					\$5
2.4 City Council/PPP Approvals	City & PPP	copies																					\$0
2.5 Award System Purchase Orders*	City & PPP	copies																					\$1,410
2.6 Purchase Bird Washer, Tank, Cover	PPP																						\$150
3. Installation & Construction																							\$0
3.1 Select & Engage Local Contractors	PPP																						\$0
3.2 Complete Site Work/Plant Modifications	PPP	notice																					\$100
3.2 Monitor Fabrication of Systems	Water Tech																						\$15
3.4 Oversee Installation of Systems	PPP & W/T	notice																					\$0
4. Start-up & Testing																							\$0
4.1 Supervise Performance Testing	Water Tech	test reports																					\$15
4.2 Obtain USDA Final Approvals	Water Tech	copies																					\$10
4.3 Final Acceptance & Approval	City & PPP	copies																					\$0
TOTAL PROJECT (excluding new chiller)						\$20				\$70				\$360				\$865				\$485	\$1,800
City of Petaluma / Proposition 13 Urban Grant Funding										\$0				\$250				\$550				\$300	\$1,100
Petaluma Poultry Processor Investment**		\$400				\$20				\$70				\$110				\$315				\$185	\$1,100

* The three filtration systems and the ozone equipment will be procured as complete systems at a lump sum price on an installed, "turnkey" basis with guarantees verified by performance tests

** Includes the \$400,000 that PPP spent in 2001 to purchase and install new 30,000-gallon open-top, auger chiller and to upgrade chiller refrigeration system

3. Monitoring and Assessment

The City will conduct project monitoring and an ongoing assessment of the performance of the city-owned equipment that will be installed on PPP's premises using the Proposition 13 grant funds. Specific project-related performance parameters (such as system operating rates, reduction in chlorine use, etc.) will be established and included in the Operating Agreement that the City and PPP will enter as part of this project.

The general monitoring and assessment procedures that will apply to PPP for this project are expected to be the same as those outlined for large industrial water efficiency projects in the City's draft IWEP. These procedures call for (1) engaging a consultant, who will issue periodic summary Monitoring & Assessment (M&A) reports to the City based on the performance parameters established in the Operating Agreement; and (2) creating an internal procedure at PPP whereby resource-saving performance will be monitored daily, compared to expectations, and corrected when astray.

The summary M&A reports prepared for the City will include one pre-project report that establishes baseline conditions; four quarterly reports during the project's first year following Final Acceptance and Approval; and annual reports thereafter until December 2013. The quarterly M&A reports shall, at a minimum, provide water and wastewater volumes under baseline and actual conditions; accumulated savings; and variance against the totals provided by the pro-forma analysis presented in Exhibit IV. These reports will be available to support workshops, presentations, and related activities. The City will engage a private professional engineer to perform this service both to ensure the quality of the work and to protect PPP against disclosure of proprietary data.

The City of Petaluma's draft IWEP is designed to provide financial incentives according to volume of water saved, as measured by unit water consumption. In the case of PPP, although total net annual water use is expected to rise slightly from 61 to 67 million gallons per year, the City will realize an effective savings of 61 million gallons per year. This is because PPP's expected 277% increase in production will be offset by the ability this project provides for using 60% less water per bird. For the City's Water Efficiency Program, which is concerned with both economic and environmental vitality, performance assessment requires the City to establish savings on the basis of measuring both water use efficiency and economic production.

There are, of course, details to be determined. The City's financial benefits depend upon gallons of city water (existing and "new") displaced and the corresponding amount of wastewater avoided. Suitable and repeatable means must be determined for measuring each of these parameters. Furthermore, a definition of birds processed is required, as well as a means for relating birds processed to water consumed across common time intervals.

As shown in Figure 3, work on developing the definitive the M&A protocols for the project will begin in 4th quarter 2002 and continued into 1s quarter 2003. The initial sub-task will be to confirm the total water consumption and production provided in Exhibit I; and unit water consumption, complete with its disaggregated values (Lines 7-15). This will be accomplished where possible with mechanical water meters. SCWA's ultrasonic equipment (Panametrics clamp-on transducers coupled with flowmeter/dataloggers) will otherwise be employed. Data will be collected over a sufficient length of time to develop a valid baseline. These data then will be confirmed against total use measured by the PPP well and the City's water meter. Sources of discrepancies (e.g., poor meter placement, poor calibration, etc.) will be identified and resolved. The relation between influent water and wastewater discharged will also be checked.

The City's Measurement and Assessment consultant will also work with PPP and WaterTech Partners to ensure provision is made in the design of each of the proposed new systems to allow direct performance measurements.

The City's consultant will also work with PPP to develop and install a Water Management System, akin to procedures specified for ISO 14001-compliant Environmental Management Systems. This, a key feature of the City's prototype IWEP, is intended to help its industrial partners to maximize the value of the combined public-private investment in their water-saving projects.

The Water Management System will be a written PPP policy that will specify a precise protocol for measuring water performance, comparing against design specifications, and taking corrective action when needed. The specific person responsible for each step of the procedure, and for managing the overall procedure, will be identified. Properly executed, this procedure will assure that expected performance is achieved consistently. Furthermore, by establishing not only an overall gallons/bird target, but also specific consumption targets for each specific water using step, the source of excessive water use may be quickly identified and corrected. Finally, by focusing attention upon specific activities daily, and by creating a chain of accountability, ground is laid for continuous improvement, and for awarding incentives to those who identify opportunities for improvement.

This project is not the end point for improving water- and energy-use efficiency at PPP. PPP has nurtured a corporate culture in which its employees take pride in operating in a socially responsible and sustainable manner. These core values are reflected in PPP's corporate motto, "Sustainably Farmed Chicken". They are also reflected in the fact that PPP was one of only two businesses in Sonoma County named "Environmental Business of the Year" for 2002. The Sonoma County Conservation Council sponsors this award, and the Environmental Business Council of the North Bay selects the winners. Thus, the real impetus for meeting and exceeding the performance objectives set out for this project will come from the initiative of PPP's work force. The City's M&A program will serve mainly to document their achievements and to assure the responsible use of public funds.

4. Preliminary Plans and Specifications

Preliminary Plans and specifications for this project were prepared by WaterTech Partners as part of the scope of work of the PIER project that was completed in December 2001. The sizing and performance requirements for the various components of this project were determined based on the results of the pilot system tests conducted at PPP from June to October of 2001. In addition, Dr. Strasser, a WaterTech Partners associate, attended the International Poultry Show in Atlanta in January 2002; and in conjunction with this show, Dr. Strasser visited several poultry processing plants in Georgia at which various water recycling and reuse schemes approved by the USDA are presently being practiced. The water recycling/reuse scheme that WaterTech Partners has developed for use at PPP in this project is based on the knowledge acquired from the pilot tests; and from studying the water recycling/reuse systems in use at these state-of-art poultry processing plants in Georgia.

While the systems and equipment that will be used at PPP for this project all will be commercially proven, this project will be novel in that no poultry plant has yet to replace completely the use of chlorine chemicals as an anti-microbial sanitizing agent. A key technical objective of the PIER project conducted at PPP in which the USDA participated was proving the efficacy of ozone as a replacement for chlorine. Based in part on the successful test results achieved during the PPP pilot tests, the USDA approved in December 2001 the general use of ozone as an anti-microbial sanitizing agent in poultry processing. This approval makes it feasible for cost, safety and product quality reasons for poultry processors to switch from chlorine to ozone for their sanitizing operations. Accordingly, as part of this project, PPP will replace its use of chlorine with onsite generated ozone gas. When this project is completed, PPP will be the first and only poultry processing plant in the U.S. that may claim to use a completely chlorine-free sanitizing process.

The preliminary plans and specifications that have been developed for the project are enclosed herewith. These documents consist of budgetary price quotations, process and equipment descriptions, and literature received from potential suppliers of the various components of the proposed project. Based on WaterTech Partners' experience on other similar projects involving the purchase and installation of membrane systems and related equipment, WaterTech Partners is confident that the cost estimates given in this proposal are complete and reasonably accurate (within 15%); and that a fully functional and usable system can be built within the budgeted amount that will enable the City and PPP to achieve the project objectives set out in this proposal.

This cost and technical information on the various components of the project has been submitted to and reviewed by Mr. Tom Hargis, Director of the Dept. of Water Resources and Conservation for the City of Petaluma. Since the City is the grant applicant and potential grant recipient for this project, Mr. Hargis is the individual who, as a Registered Professional Engineer in California, has signed the required certification statements included on page 4 of this proposal.

C. Qualifications of the Applicant and Cooperators

1. Project Manager

Mr. Thomas S. Hargis, P.E., Director, City of Petaluma Department of Water Resources and Conservation, will serve as Project Manager. Mr. Hargis has served as a Department Head with the City of Petaluma since 1979. Prior to his present position, he directed the City's Engineering and Public Works Departments. Mr. Hargis earned his BS in Civil Engineering at the University of California, Berkeley.

2. External Cooperators

- a. **WaterTech Partners**, the firm and individuals who performed the highly successful 3-year, \$700,000 PIER project at PPP, will be an external cooperator on this project. In addition to having performed the PIER project on which this Proposition 13 commercial project is based, WaterTech Partners has experience designing water-recycling projects of this nature and in procuring the types of systems and equipment involved in this project. As noted in Figure 3, WaterTech Partners' role in the project will include conducting the membrane performance tests (Task 1.5); obtaining conditional and final USA for the operational changes that will be made at PPP under this project (Tasks 1.7 and 4.2); preparing the vendor quotation packages for the filtration and ozone systems that will be procured as part of the project (Task 2.1); assisting in the selection of vendors for each system (Tasks 2.2 and 2.3); and monitoring the performance of the vendors after purchase orders are issued (Task 3.2 and 3.3). The project budget includes \$85,000 for the services of WaterTech Partners for these tasks. The principals who will perform WaterTech Partners' assignments on this project are Ronald Enzweiler (project management); Dr. Dee Graham (microbiologist); and Dr. Jurgen Strasser (process engineer). The professional résumés of these individuals are presented in the attachments. Dr. Graham's participation in this project is particularly noteworthy since Dr. Graham has a long and successful history in obtaining FDA and USDA approvals for using ozone in food applications. Dr. Strasser's knowledge of water treatment equipment and systems and industry contacts will also be highly valuable on this project.
- b. **Pacific Technology Associates**, the firm and individual who prepared the draft IWEP for the City of Petaluma, also will be an external cooperator on this project. The specific task that PTA will perform in this project will be to prepare the definitive Monitoring and Assessment Plan (Task 1.4) that will be made part of the Operating Agreement between the City and PPP. This assignment will be performed in conjunction with other related work that PTA is expected to perform for the City in connection with the adoption and implementation of the IWEP on a citywide basis in 2002. The project budget includes \$15,000 for PTA to perform Task 1.4. Mr. Orrett's professional résumé is presented in the attachments.

D. Benefits and Cost

1. Budget Breakdown and Justification

Since this project primarily involves the purchase and installation of equipment at an existing industrial plant site, the breakdown of cost by component provides the most meaningful way to explain and justify the costs of the project. The breakdown is given in Exhibit II. The justification for inclusion for the items listed in Exhibit II in the project scope is given in Section B.1

The breakdown of costs by the categories listed in the PSP is given below.

TABLE 1
CAPITAL COSTS BREAKDOWN BY PSP COST ELEMENTS

Category	Cost	Comments
a. Land Purchase/Easements	None	Provided by PPP
b. Planning/Design/Engineering	\$25,000	Required for plant modifications
c. Materials/Installation		Included with equipment
d. Structures	\$75,000	Building for new equipment
e. Equipment Purchases*	\$1,950,000	See Exhibit II for details
f. Environmental Mitigation		Not required
g. Construction	50,000	Plant modifications
h. Project Mgmt Services	\$100,000	WaterTech Partners & PTA
i. Contingency		Included in each item
j. Other	None	
TOTAL PROJECT	\$2,200,000	

* most project components will be purchased on a turnkey basis for a single, lump sum price inclusive of engineering, materials, license fees and installation

2. Cost Sharing

As indicated in the support letter from PPP included with this proposal, PPP is willing to match the grant amount this project is awarded with its own investment in the project. To date, PPP has invested \$400,000 in this project, which indicates PPP's willingness to invest an additional \$700,000, assuming the \$1,100,000 in Proposition 13 grant funds are provided as requested. The specific items that each party will finance under this proposed 50:50 capital cost sharing arrangement is shown in Exhibit II. As noted in Exhibit IV, the financial benefits that each party can expect to derive from this project will also be split approximately 50:50 (based on each party's respective investment criteria) under these proposed terms. All cost sharing funds will be provided on a quarterly basis during the 15-month project schedule shown in Figure 3.

3. Benefits Summary and Breakdown

a. *Quantifiable Benefits*

PPP is expected to ramp up its production over the next four years such that, by the fourth year after start-up (2007), the plant is operating on a 2-shift/day, 300-day/year basis and is producing over 20 million birds per year – an increase of 277% over base year (2000) production of 8.8 million birds (Exhibit I, Lines 2-6 and Exhibit IV, Line 1). When the plant reaches this level of production, the new water recycling and reuse systems that will be installed at PPP as part of this project are expected to produce 81,303 CCF/year (186 AFY) of “new water” (Exhibit IV, Line 4). Of this amount of “new water”, 4,094 CCF/year represents a reduction in base year City-water use (Exhibit IV, Line 6), since PPP’s use of City-water will be decreased from 10,181 CCF/year in the base year to 6,087 CCF/year in 2007 (Exhibit IV, Line 7).⁸ The remaining amount (77,209 CCF/year) represents “new water” to support economic growth in the community based on PPP’s projected 277% production increase.

The onsite production of 81,303 CCF/year of “new water” from the plant’s wastewater stream will simultaneously: 1) displace the need for an equivalent quantity of City-supplied water; and 2) reduce the quantity of wastewater effluent that PPP discharges into the City’s central wastewater treatment plant. This “double benefit” from onsite water recycling and reuse by CII water users is recognized in the methodology used to develop the City’s draft IWEP. For indoor water users, the City’s levelized unit avoided costs are \$1.14 /CCF for water supply and \$1.66/CCF for wastewater reductions. Thus, projects that generate savings in both categories, such as this proposed project at PPP, are credited with \$2.80/CCF. When production reaches 20 million birds/year and the onsite water recycling/ reuse systems are operated to produce 81,303 CCF/year of “new water”, the value of this “new water” and the corresponding reduction wastewater flows to the City will total **\$227,647 per year** (Exhibit IV, Line 11).

From PPP’s perspective, the revamping of its operations as a consequence of his project will result in a net decrease in direct operation costs related to water supply, chilling, treatment and disposal. These costs will drop from \$0.040 per bird in the base year to \$0.026 per bird in year 6 when production is assumed to level out at 24.3 million birds/year (Exhibit III, Line 24 and Exhibit IV, Line 1). A slight decrease on unit costs for anti-microbial agents is also expected, since the costs for operating the ozone

⁸ As shown on Line 5 in Exhibit IV, PPP’s use of City water in years 1 to 5 actually will be zero since it is assumed that operating of the onsite recycling/reuse system will be **maximized** – even if this means reducing the amount of onsite pumped groundwater that PPP uses. However, when production increases to the 24.3 million birds/year, groundwater use (84,447 CCF/year) and production of recycled/reused water (81,303) both will be **maximized** (within certain operational constraints). At this point, the deficit in plant water needs will be 6,087 CCF/year (Exhibit IV, Lines 3-5). This makeup is assumed to be City water.

systems (about \$6,000 per year for power) installed as part of the project will be less than the costs PPP now incurs to buy chlorine gas and sodium chlorite (about \$25,000 per year) (Exhibit III, Lines 32 and 33). When combined, PPP's total saving in direct operating costs as a result of implementing this project are projected to decrease from \$0.042 per bird to \$0.026 per bird (Exhibit III, Line 35). This represents a 38% decrease for these cost items.

PPP's quantified benefits from the project are obtained by multiplying this unit cost savings by the number of birds that PPP is projected to produce each year. This figure ranges from \$166,034 in year 1 to \$390,668 in years 6 to 10 (Exhibit IV, Line 18).⁹ The average is about **\$330,000 per year.**

The quantified benefits that the City and PPP gain from this project directly relate to CALFED goals by reducing overall demand for "new water" in the state through implementation of cost-effective water-use efficiency improvement measures. As indicated above, the credit for avoided "new water" costs in this analysis is \$1.14/CCF. This equates to about \$500/AF – which is a lower cost for "new water" than most supply augmentation projects now being considered and studied by CALFED. Moreover, as with all recycling and reuse projects, the source of "new water" generated with this project will be available in dry years as well as wet years. Hence, its value is even higher than average cost figures.

b. *Non-Quantifiable Benefits.*

The most obvious non-quantifiable benefit that this project will achieve is the elimination of an estimated 6 tons/year of chlorinated compounds from reaching San Francisco Bay. From the perspective of the environmental community, this clearly is a "step in the right direction" even if the precise benefits of removing this amount of chlorine from the Bay-Delta ecosystem cannot be measured at this time. Since improving Bay-Delta water quality is an explicit CALFED objective, this project will contribute to the achievement of this goal.

4. Assessment of Costs and Benefits

- a. The methodology and assumptions used to generate the Benefit/Cost Analysis presented in Exhibit IV are explained in Section D.3.a. above.
- b. Exhibit IV was prepared using the methodology for computing benefits to the City that is contained in the draft IWEP. This methodology differs from CALFED methodology specified in the PSP in that the City includes at 2.5 % annual inflation factor (PSP uses no inflation factor); but, to be conservative, the City credits a project with only 80% of the expected

⁹ This simplified analysis overstates the cost savings for PPP since operating costs will not be reduced from \$0.042/bird all the way to \$0.026/bird until year 6 when production reaches 24.3 million birds.

annual benefits (PSP does not apply an adjustment factor). Thus, there are two different figures for the present value of the future benefits that this project will generate for the City. There is also a difference in the discount that PPP (or any private enterprise) would use to calculate the present value of future benefits associated with this project compare to the rate specified in the PSP. The PSP stipulates a 6% discount rate. While this rate is applicable to public entities, it is inappropriate for private enterprise since private firms have much higher capital costs than public entities. A discount rate that more closely reflects the cost of capital for private enterprise is 12%. Private firms need a premium over this rate to justify doing a project to account for risks. This project, as structured, will provide PPP an internal rate of return (IRR) of about 30% (i.e., the discount rate that makes the NPV = 0). This equates to a 3- to 4-year payback on investment. This is a reasonable, but not an excessively high, return for a relatively high-risk project of this nature.¹⁰

- c. In the case of the City, the present value of future project benefits over the project's 10-year operating life is **\$1.4 million** using the methodology in the City's draft IWEP (Exhibit IV, Line 14, Base Year Column). Using the methodology stipulated in the PSP, this figure is \$1.5 million (Exhibit IV, Line 11, Base Year Column). In the case of PPP, if the public sector discount rate of 6% is used (as specified in the PSP), the present value of the project's future benefits to PPP over the 10-year project life is \$2.3 million (Exhibit IV, Line 19, Base Year Column). However, if the more appropriate private sector discount rate of 12% is used, this present value figure drops to **\$1.7 million** (Exhibit IV, Line 20, Base Year Column).
- d. A summary of benefits and costs by the applicant (the City), the private sector beneficiary (PPP) and CALFED is shown in Table 2 below.

Table 2
Benefits and Costs Summary
(using PSP evaluation criteria)

	Applicant (City)	PPP	CALFED
Net Present Value of Quantified Benefits	\$300,000*	\$1,600,000**	Indeterminate
Non-quantified Costs & Benefits	Impetus for launching Citywide IWEP	First and only chlorine-free producer	Elimination of chlorine from Bay-Delta

*same whether City or PSP method is used ** reduced to \$1,000,000 at 12% discount rate

¹⁰ Risks that PPP will bear in the project include 1) being able to develop a market for additional product; 2) operating problems that may be encountered with water recycling systems; and 3) uncertainties over the effectiveness and reliability of the new ozone sanitizing process.

- e. This project is locally cost-effective because the benefit-to-cost ratio for the applicant, using the applicant's method of analysis, is **1.25 to 1**. This figure is determined by dividing the \$1.4 million present value of the expected future benefits using the City's method of analysis (Exhibit IV, Line 14, Base Year Column) by the requested \$1.1 million grant amount. This ratio would be same if the methodology specified in the PSP were used. This because one would deduct \$100,000 from the \$1.5 million PSP present value figure (Exhibit IV, Line 11, Base Year Column) to account for the present value of M&A costs that the City will incur in future years. With this adjustment, the project's benefit-to-cost ratio for the applicant using the PSP criteria would also be **1.25 to 1**.

E. Outreach, Community Involvement and Acceptance

The City of Petaluma has been pleased to coordinate this project with a wide range of governmental officials, agencies, community based organizations, and watershed groups.¹¹ Please refer to the Attachments to consult letters that were kindly offered in support of this project.

Support for this project is overwhelmingly positive. As a project that provides a wide range of public and private benefits, both quantifiable and non-quantifiable, we have yet to discover anyone or any group who is opposed to this in any way. We are pleased to note the variety of constituencies that recognize value in this project, and are especially pleased for the support given by watershed groups, whose appreciation is the same regardless if their area of interest lies upstream or downstream from the affected facility. This is a model of a project that makes sense to people on economic, social, and ecological grounds.

In looking ahead to community involvement, it is clear that this project dovetails perfectly with high profile local initiatives. One example, which is driven by an extraordinary citizen effort, is a campaign to expand the functionality of the City's forthcoming Water Recycling Facility to include 70 acres of enhancement wetlands. The ideal objective is to develop the enhancement wetlands, which will polish tertiary effluent, as a public park that will also showcase the adjacent tidal marsh. This concept has attracted attention from leading wildlife and wetlands organizations (including Audubon and Ducks Unlimited). The City, in response to public support, retained world-renowned environmental artist Patricia Johanson to design the park. Petaluma Poultry Processors, which may possibly relocate its processing plant adjacent to the park (a relocation which will include moving the grant-funded equipment), would, in this event, be integrated into the park visitor's experience by Ms. Johanson as a world-class model of resource efficiency.

¹¹ Individuals or organizations contacted include Congressperson Lynn Woolsey (D-Petaluma), Chairman of the Sonoma County Board of Supervisors Mike Kerns, California Energy Commission, State Coastal Conservancy, Sonoma County Water Agency, Petaluma Area Chamber of Commerce, The Bay Institute of San Francisco, Friends of the Russian River, and twelve additional Petaluma-based watershed and community organizations.

As magnificent as the PPP project is, the City of Petaluma understands that its benefits will mean little on a regional level unless this approach becomes the norm rather than exception. Consequently, the City is creating a citywide Commercial, Industrial, and Institutional (CII) Water Efficiency Program.¹² This program, now in the final phases of development, aims to “Hold the Flow” of water use in the CII sector across the next ten years while also delivering energy efficiency and pollution prevention benefits.

The City’s approach to CII water efficiency reflects two key research findings: (1) private companies generally require projects with simple paybacks of less than less than three years, and more commonly two; and (2) projects that provide only water savings usually are too insignificant from a financial perspective to merit attention. Consequently, the design of the City’s CII Program, prepared independently of the PPP project, provides public financial incentives of up to 80% of the City’s avoided costs to support private projects, and stresses integrated resource efficiency in the design of projects to maximize value.

The PPP project perfectly illustrates the rationale described above. The project reflects a design approach that uses a systems perspective, and therefore delivers significant value by solving many problems at once. The simple payback, although beyond the typical hurdle rate for a private company, becomes acceptable when the public sector joins as a financial partner in the project. Public participation in this project is fully justified by the fact that the public investment is less than what must otherwise be spent to fund traditional water and wastewater services to an equivalent level. The added benefits of avoided environmental impacts, across the countless places they will otherwise appear, are achieved for free.

The opportunity to partner with DWR to launch the PPP project is therefore extremely timely, for this provides the way for business and watershed groups to understand the rationale for the City’s larger program, and thereby create the political support necessary to launch it. The principal focus for community outreach – tasks that lie within the domain of the City’s Department of Water Resources and Conservation, but will be shared with community groups – is therefore to get the word out about this project and the benefits of a citywide program.

Information dissemination will be accomplished by:

- Individual or group meetings with stakeholders;
- Creating videos for broadcast on Petaluma’s community access TV station (a strategy proven highly effective previously for shows about a dye house, toilets, and water wasting);

¹² Following two small demonstration projects for local industries, the City conducted opinion surveys, studied CII programs nationwide, attended conferences, updated its avoided cost model, and drafted a detailed 10-year Program. This is now in the process of being polished prior to review by the City Council.

- Press releases to local and regional general interest media, trade and technical publications, and watershed-advocacy group newsletters;
- Direct mail to interested parties;
- Posting information on local web sites; and
- “Case study” presentations at meetings of the Chamber of Commerce and other environmental and business groups

In addition to such efforts with in the City of Petaluma, information obtained via the City’s Measurement and Assessment function will be used to support presentations for specific industrial (certainly to include other poultry processors) and technical audiences. Mr. Orrett, for example, one of the projects External Collaborators, has been invited to make a presentation about the City’s CII water efficiency work at the American Water Works Association’s National Convention.

To extend the informal outreach that has been accomplished to date, additional tasks are planned:

- Identify which local groups or other interested organizations are aware of the project and their level of support or opposition;
- Build community support and mitigate opposition where possible; and
- Identify and attempt to mitigate any potential third-party impacts

The success of the outreach plan will be evaluated by:

- Number of case study presentations
- Amount of publicity engendered
- Website traffic
- Meeting feedback
- Outreach Process documentation

This project will result in approximately 200 new jobs at Petaluma Poultry Processors. Additional jobs may be created indirectly in support activities elsewhere in the economy. As the City is able to stimulate additional projects in the City, more jobs will be created. Given the City’s close association to other municipalities in the region, all who share a similar opportunity for financial benefit from such projects, regional dissemination is likely over time.

Each project will deliver financial benefits not only to the private partner, but also to all water utility ratepayers. This is because the City’s investment rate for efficiency is set below the cost for developing traditional water and wastewater services.

EXHIBITS AND ATTACHMENTS

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Exhibit I

Petaluma Poultry Processors & City of Petaluma
Production Increase and Water- and Energy-Use Efficiency Improvement Project

Comparison of Operating Parameters

A		B	C	D	E	F
			Base Year (2000)	Future Operations	Change	Comment
Production Capacity		<u>Units</u>				
1	Line Speed	birds/minute	75	90		per new chiller capacity
2	Production Time	hours/day	7.5	15.0		Add 2nd Shift in Year 3
3	Start-up & Cleaning	hours/day	2.0	1.5		less chiller start-up time
4	Annual Plant Operations	days/year	260	300		6 days/week in Year 2
5		hours/year	2,470	4,950		
6	Total Production	birds/year	8,775,000	24,300,000	277%	increase vs. base year
Water Uses:		<u>Nominal Reqmts:</u>	<u>Mgal/yr</u>	<u>Mgal/yr</u>		
7	Plant Clean-Up	50 kgals/day	13.0	15.0		no change
	Chiller Bath Fill-Up	30 kgals/day	7.8	1.5		
8	Kill, Scalding, Defeather	0.9 gals/bird	7.9	21.9		substitute reuse water
9	Evisceration & Wash	1.7 gals/bird	14.9	41.3		53% reuse rate
10	Pre-Chiller Rinse	1.5 gals/bird	13.2	36.5		80% recycling rate
11	Chiller Bath Overflow	0.5 gals/bird	4.4	12.2		80% recycling rate
12	Total Water Use:		61.2	128.3		
13	Less: On-Site Recycling & Reuse			(60.7)	= 225	gpm on-site systems
14	Net Water Requirements:	<u>Mgal/year</u>	61.2	67.5		
15		gals/bird	7.0	2.8	60%	Improvement in WUE
Water Sources:						
16	On-site Groundwater		53.6	63.0		206 kgal daily maximum
17	City Water Supply	Mgals/year	7.6	4.5	40%	Savings in City water
Electric Power Use (related to water, chilling and sanitizing)						
18	Chiller-Water Refrigeration*	kW	203.7	184.0		30 kgal bathwater and overflow are recycled
19	24 kWh/kgal	kWh/year	503,100	910,800		
20	Ozone Production	kW	N/A	8.3		3x20 lb/day generators
21	3.3 kWh/lb	kWh/year	N/A	61,256		@ 2.6 kW each
21	Water Recycle/Reuse	kW	N/A	92.0		225 gpm capacity @
23	7.5 kWh/kgal	kWh/year	N/A	455,497		(including pretreatment)
24	Water Supply & Treatment	kW	45.5	26.7		
25	2.1 kWh/kgal	kWh/year	112,476	132,300		total water use about same
26	Total Power Use	kW	249.2	311.0		
27		kWh/year	615,576	1,559,854		
28	Total Specific Power Use**	kWh/bird	0.070	0.064	8%	Improvement in EUP
Use of Sanitizing Agents						
29	Chlorine Gas	lbs/day	40	None		estimated current usage
30	Chlorine Dioxide	lbs/day	60	None		estimated current usage
31	Ozone (produced on-site)	lbs/day	N/A	60		
Waterwater Effluent						
32	Flow to City Sewer Plant	Mgals/year	55.0	60.8		will remain 90% net use
33	Organic Loading	tons/year	58	73		slight increase expected
34	Chlorinated By-Products	tons/year	6.37	0.3	95%	Discharge Reduction

*assumes 24 watt-hours are required to chill each bird, plus initial chiller cool-down and overflow losses

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** energy use *per bird* is less even with (i) **on-site** water recycling & reuse and (ii) **on-site** anti-microbial agent production

Exhibit II
Petaluma Poultry Processors & City of Petaluma
Production Increase and Water- and Energy-Use Efficiency Improvement Project
Capital Investment & Proposed Cost Sharing

A Capital Costs Elements <i>preliminary estimates based on similar poultry industry projects and budgetary quotes from potential vendors</i>	B Total Estimated Costs	C CALFED WUE Grant Portion¹	D Petaluma Poultry Portion
1. New 30,000 gallon chiller with 90 bird-per-minute operating capacity and new refrigeration system ²	\$400,000		\$400,000
2. 45-gpm feed, 80% recovery UF system for recycling & ozonating chiller overflow water, incl. feed tank, wedge-wire strainer, bubble-air flotation (BAF) unit, piping, electricals and instrumentation	\$200,000		\$200,000
3. 125-gpm feed, 80% recovery UF system for recycling & ozonating pre-chiller rinse water, incl. feed tank, wedge-wire strainer, BAFunit, piping, electricals and instrumentation	\$750,000	750,000	
4. 100-gpm feed Zentox Cascade™ system (or equal) for treating & ozonating effluent from evisceration & hot wash for reuse in "front-end" operations, incl. feed tank, BAFunit, diatomaceous earth (or equal) final filter, piping, electricals & instrumentation	\$350,000	350,000	
5. Approx. 800 ft ² (20" x 40') steel building for new membrane and Cascade systems	\$75,000		\$75,000
6. New Insulated 30,000 gallon tank for storing & ozonating chiller-water overnight	\$50,000		\$50,000
7. New enclosed in-out birdwasher designed for ozone use and rinse-water capture	\$50,000		\$50,000
8. 3 x 20 lb/day ozone generators, with pressurized concentrator vessels & controls	\$110,000		\$110,000
9. Installation of cover over existing chiller with exhaust system with heat exchanger	\$65,000		\$65,000
10. Upgrade plant electrical service; modify in-plant piping; upgrade existing water and wastewater treatment facilities	\$50,000		\$50,000
11. Project management, incl. design, pilot testing, permitting and USDA approvals	\$100,000		\$100,000
<u>TOTAL PROJECT CAPITAL COSTS</u> Proposed Cost Sharing:	<u>\$2,200,000</u> 100%	<u>\$1,100,000</u> 50%	<u>\$1,100,000</u> 50%

¹ The Proposition 13 grant will be applied for and issued to the City of Petaluma

2/11/02

² PPP purchased and installed this new chiller in 4th quarter 2001

Exhibit III
Petaluma Poultry Processors & City of Petaluma
Production Increase and Water- and Energy-Use Efficiency Improvement Project

Economic Factors

	A	B	C	D	E
	Direct Operating Costs related to water use, chilling and anti-microbial agents		Base Year (2000)	Future Operations	Comments
1	Plant Production:	birds/year	8,775,000	24,300,000	277% increase
Water Supply, Chilling, Treatment & Disposal (O&M costs)					
2	Groundwater Pumping & Treatment	Mgals/year	53.6	63.0	pumping same, but switch to ozone injection
3	\$0.50 / CCF	\$/year	\$35,850	\$42,169	
5	Purchase of City Water	Mgals/year	7.6	4.5	40% decrease
6	\$2.60 / CCF	\$/year	\$26,470	\$15,826	
7	Chiller-Bath Refrigeration	kWh/year	503,100	910,800	significant per-unit cost saving with recycling
8	\$0.10 / kWh	\$/year	\$50,310	\$91,080	
9	Water Recycling/Reuse Systems*	Mgal/year		60.7	Note: unit operating of recycle/reuse systems are about same as unit cost for City water
10	Power	kWh/year		455,497	
11	\$0.10 / kWh	\$/year	N/A	\$45,550	
12	O&M \$2.00 / CCF	\$/year		162,605	
13	SUB-TOTAL:	\$/year		\$208,155	
14	Effective Unit Cost:	\$/ CCF		\$2.56	
15	On-Site Effluent Treatment by PPP	Mgals/year	55.0	60.8	hydraulic and organic load about same
16	\$1.00 / CCF	\$/year	\$73,693	\$81,382	
17	City Sewer Fees	Mgals/year	55.0	60.8	slight increase in flow and higher organic load from production increase
18	Fixed Charge \$365 /month	\$/year	\$4,380	\$4,380	
19	Flow Charge \$2.60 / CCF	\$/year	106,915	118,071	
20	Surcharges \$778.00 /ton BOD	\$/year	54,149	68,107	
21	SUB-TOTAL excess	\$/year	\$165,444	\$190,558	
21		\$/CCF	\$4.02	\$4.20	
23	Sub-Total: Water-Related Costs	\$/year	\$351,767	\$629,169	35% reduction in unit cost
24		\$/bird	\$0.040	\$0.026	
Anti-Microbial Agents (O&M costs)					
25	Chlorine Gas (2000 lb cylinders)	lb/year	10,400		chlorine use as anti- microbial agent eliminated significant safety and enviromental benefits will also result from eliminating chlorine
26	\$0.60 / lb Cl ₂	\$/year	\$6,240		
27	Sodium Chlorite (for ClO ₂ production)	lb/year	15,600		
28	\$1.20 / lb ClO ₂	\$/year	18,720		
29	SUB-TOTAL		\$24,960		
30	Ozone Production	kWh/year		61,256	
31	Power: \$0.10 / kWh	\$/year	N/A	\$6,126	
32	Sub-Total: Anti-microbial Costs	\$/year	\$18,720	\$6,126	88% reduction in unit cost
33		\$/bird	\$0.002	\$0.000	
34	Total Direct Operating Costs	\$/year	\$370,487	\$635,295	38% total savings in unit costs
35		\$/bird	\$0.042	\$0.026	

* assumes skimmings from BAFs and diatomaceous earth filter are disposed at no net cost

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Exhibit IV
Petaluma Poultry Processors & City of Petaluma
Production Increase and Water- and Energy-Use Efficiency Improvement Project
Benefits and Costs Analysis

Project Year:			Base	1	2	3	4	5	6	7	8	9	10
Operating Plan:			Year	--- 6 days/week -->		----- Add Second Shift ----->		----- Full Production w/second shift ----->					
Calendar Year			2000	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
1	Projected Plant Production:	birds/year	8,775,000	10,327,500	11,880,000	18,090,000	20,418,750	22,599,000	24,300,000	24,300,000	24,300,000	24,300,000	24,300,000
A. Analysis from City's Perspective (per criteria set forth in draft Industrial Water Efficiency Program, dated 1/15/2002)													
2	PPP's Nominal Water Requirements	CCF/year	81,881	87,294	96,230	131,977	145,382	157,933	171,727	171,727	171,727	171,727	171,727
3	Less: Groundwater Use	CCF/year	(71,700)	(39,370)	(41,968)	(52,359)	(64,080)	(76,630)	(84,337)	(84,337)	(84,337)	(84,337)	(84,337)
4	Less: Recycle/Reuse Systems ¹	CCF/year	0	(47,924)	(54,262)	(79,618)	(81,303)	(81,303)	(81,303)	(81,303)	(81,303)	(81,303)	(81,303)
5	Net: City Water Use	CCF/year	10,181	0	0	0	0	0	6,087	6,087	6,087	6,087	6,087
City Water Savings & Wastewater Flow Reductions with Project													
6	Existing Water Use Savings	CCF/year		10,181	10,181	10,181	10,181	10,181	4,094	4,094	4,094	4,094	4,094
7	New Development Savings ²	CCF/year		5,413	14,349	50,096	63,502	71,122	77,209	77,209	77,209	77,209	77,209
8	Total City Water Savings: ³	CCF/year		15,593	24,530	60,277	73,682	81,303	81,303	81,303	81,303	81,303	81,303
9	Reduction in WW Flow: (= Line 4)	CCF/year		47,924	54,262	79,618	81,303	81,303	81,303	81,303	81,303	81,303	81,303
10	Value of Saved Water/Wastewater @ City's Avoided Costs												
	Water @ Indoor Rate	\$1.14 / CCF		\$17,776	\$27,964	\$68,716	\$83,998	\$92,685	\$92,685	\$92,685	\$92,685	\$92,685	\$92,685
	Reduced WW Flow @	\$1.66 / CCF		79,553	90,076	132,166	134,962	134,962	134,962	134,962	134,962	134,962	134,962
11	Total Actual Savings for City:	\$/year	\$1,499,384	\$97,330	\$118,040	\$200,881	\$218,960	\$227,647	\$227,647	\$227,647	\$227,647	\$227,647	\$227,647
12	Value with Inflation @	2.5% per year		\$99,763	\$124,016	\$216,327	\$241,691	\$257,562	\$264,001	\$270,601	\$277,366	\$284,300	\$291,408
13	City's Avoided Cost @:	80% credit factor		\$79,810	\$99,213	\$173,062	\$193,353	\$206,049	\$211,201	\$216,481	\$221,893	\$227,440	\$233,126
Present Value in 2003 of 80% of Project's													
14	Net Benefits to City @	6.0% discount rate	\$1,381,858	<— This value gives City 1.25 benefit-to-cost ratio on \$1.1 million capital grant provided by City									
A. Analysis from Petaluma Poultry's Perspective													
15	Required New Capital Investment by PPP:		\$700,000										
Savings in O&M Costs from Project:													
	Current Unit Cost	Unit Cost w/ Project	Project Savings										
16	Water-Related:	\$0.0401 \$0.0259	\$0.0142	\$146,605	\$168,644	\$256,799	\$289,857	\$320,807	\$344,954	\$344,954	\$344,954	\$344,954	\$344,954
17	Microbicides:	\$0.0021 \$0.0003	\$0.0019	\$19,429	\$22,349	\$34,032	\$38,413	\$42,514	\$45,714	\$45,714	\$45,714	\$45,714	\$45,714
18	Total Projected O&M Cost Savings:			\$166,034	\$190,993	\$290,831	\$328,270	\$363,321	\$390,668	\$390,668	\$390,668	\$390,668	\$390,668
19	Present Value @	6.0% discount rate	\$2,332,037										
20		12.0% discount rate	\$1,721,382										
21	NPV in Year 2003:	6.0% discount rate	\$1,632,037										
22		12.0% discount rate	\$1,021,382	<— This value shows project represents an attractive investment opportunity for PPP									

¹ operating rate of recycle/reuse systems is maximized subject to plant's minimum "fresh water" requirement of 1.25 gals/bird and 16.5 Mgals/yr for cleaning and chiller fill-up

2/26/02

² in this analysis, the additional water needed to meet PPP's production increases is considered "new development" under the City's "hold the flow" program for all CII uses

³ in production build-up years 1 to 4, some of the water produced by the onsite recycling/reuse systems replaces groundwater, which is why Line 8 is less than Line 4

Résumés

WaterTech Partners

Ronald Enzweiler, P.E. (Project Management)

Dr. Dee Graham (Microbiologist)

Dr. Jurgen Strasser (Process Engineer)

Pacific Technology Associates

Edwin Orrett, P.E. (Economics Consultant)

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Ronald J. Enzweiler, P.E.

CAREER SUMMARY

Mr. Enzweiler is a versatile, task-oriented executive and creative problem-solver with over 25 years experience developing, managing and marketing new technologies and services for industrial and municipal applications in the water, environmental, energy, chemical and electronic industries

- As **consultant**, possesses broad knowledge of water and wastewater treatment technologies, facilities, operations, and regulatory issues; performed assignments for both private and municipal clients throughout California, covering air, water, and hazardous waste issues; involved in CALFED projects
- As **entrepreneur**, identified new markets, developed business strategies, prepared business plans, licensed patent rights, secured and performed R&D contracts, raised equity financings, and built organizations that developed and tested new water and wastewater treatment technologies
- As **corporate executive**, held profit & loss responsibility for \$50 mm/yr sales chemical supply business as part of a \$5-billion multinational corporation; doubled sales and profits of this business over 3 year period and managed installation of new facilities costing over \$100 mm

RELEVNT RECENT ASSIGNMENTS & EXPERIENCE

- Performing \$200,000 CALFED study on effectiveness of on-farm irrigation methods to improve water use efficiency; partners on projects include Kern County Water Agency and UCCE (2001 – present).
- Investigated feasibility of launching a private agricultural water conservation and water transfer and marketing business in California for multinational French company (1999- present)
- Developed new closed-loop chiller-bath water recycling system for poultry processing using ozone and membrane technology under \$700,000 Public Interest Energy Research project funded by the California Energy Commission and Electric Power Research Institute (1998- 2002)
- Part of multinational team that developed design, preliminary cost estimates, and financing plan for \$250 mm municipal water purification system for Gaza involving brackish groundwater and seawater desalination using reverse osmosis for consideration by the Palestinian National Authority (1994-95)
- Participated in development of new industrial pretreatment standards for Palo Alto, Sunnyvale and San Jose by establishing "best demonstrated available technology;" developed plan for allocating additional pretreatment cost for meeting new NPDES permit among all users of the municipal systems (1992-93)
- Proposed, negotiated and performed \$1,500,000 cost-shared commercial demonstration contract with the Sandia National Laboratories for advanced metals-removal wastewater treatment process (1991-92)
- Developed pollution credit trading plan for industrial dischargers in the Massachusetts Water Resource Authority involving advanced treatment technologies and centralized effluent monitoring system (1992)
- Designed "zero discharge" closed-loop water system for chemical plant in Boulder, Colorado, which enabled client to avoid surcharge fees, conserve city water use, and gain public support (1993)
- Managed pilot-scale tests to determine costs and treatment effectiveness of technologies for removing disinfection by-product precursors from municipal drinking water supplies; tests done in collaboration with by EPA laboratories and universities under AWWA and WEF funding (1990-91)
- Evaluated market potential and regulatory considerations for using new solar-driven process for detoxifying municipal sewage effluent for agricultural and other non-potable uses; developed conceptual plant design in conjunction with Dept. of Energy's National Renewable Energy Laboratory (1993-94)
- Led multi-disciplined project team that developed, designed and field tested new membrane wastewater-treatment process for use on off-shore platforms to meet new discharge regulations (1989-90)

EMPLOYMENT HISTORY

CURRENT	WATERTECH PARTNERS	Moraga, California
1994 -	<u>Principal & Owner</u> Environmental engineering, consulting, and project management firm that specializes in developing and implementing innovative solutions for difficult or unique environmental problems. Also involved in commercializing new water purification, hazardous water treatment, and pollution prevention technologies. Assignment performed for industrial, venture capital and government clients. Special interest in CALFED program, water issues and biosolids.	
	CLEARFLOW, INC.	Boulder, Colorado
1991-94	<u>President & CEO</u> Founded this company in 1991 as merger of two R&D firms. Pursued the commercialization of solar water-detoxification technology developed by DOE national laboratories and universities. Raised over \$3 million in funding from government and venture capital sources. Recruited and directed eight-person professional staff and completed field testing of prototype for wastewater treatment. Developed potential \$20 million niche market.	
	AQUAAIR ENVIRONMENTAL, INC.	Bend, Oregon
1988-91	<u>President & CEO</u> Founder this startup whose focus was commercializing advanced membrane-based systems for water purification, wastewater cleanup, and air-pollution control using proprietary technology licensed from Bend Research, Inc. Raised over \$2 million early-stage financing from venture capital and corporate investors. Recruited management team, set up product development and manufacturing operations, and developed and implemented market-entry strategy	
	LIQUID AIR CORPORATION	Walnut Creek, CA / Paris, France
1980 -1988	<u>Vice President & General Manager</u> of the build-own-operate division of Liquid Air Corporation, the \$500 million U.S. subsidiary of the \$5-billion worldwide L'Air Liquide Group of France. Joined Liquid Air in 1980 as a Sales Manager. Promoted to Vice President in 1984 and given profit/loss and general management responsibility for existing \$25 million on-site oxygen, nitrogen, and hydrogen supply business. Secured new contracts that doubled sales and profits. Major projects with Texas Instruments, U.S. Steel, Borden Chemical and BASF.	

EDUCATION

INSEAD	Fountainbleau, France
<i>Advanced Management Programme</i> – April 1985. International program for senior executives, curriculum focused on corporate planning and competitive strategies/advantages within industry.	
Harvard Graduate School of Business	Boston, Massachusetts
<i>Master in Business Administration</i> – June 1978. Concentration was Production & Operations Management. J. S. Love Fellowship. First-Year Honors. Captain of HBS Rugby Club.	
Massachusetts Institute of Technology	Cambridge, Massachusetts
<i>Master of Science from School of Civil and Environmental Engineering</i> – February 1979. Followed Project Management and Process Technology curriculum.	
Georgia Institute of Technology	Atlanta, Georgia
<i>Bachelor of Industrial & Systems Engineering with Honor</i> – August 1972. Tau Beta Pi. Football scholarship, lettered three years and played in two bowl games. Air Force ROTC Cadet.	

MILITARY SERVICE

	U.S. AIR FORCE	
1974 -75	1st Lieutenant / Project Management Officer	Bitburg Air Base, German
1972 -74	2nd Lieutenant / Base Civil Engineering Officer	Ellsworth AFB, South Dakota

CIVIC & PROFESSIONAL AFFILIATIONS

Councilmember, Moraga Town Council, 1996-00
 Representative, League of California Cities, 1996-89
 Commissioner, Contra Costa Transportation Authority, 1998-00
 Member, California Water Environment Association, 1992- present
 Registered Professional Engineer, Colorado, 1980- present

Dr. Dee Graham - Microbiologist

Dr. Graham, an associate of WATERTECH PARTNERS, also serves as president of R and D Enterprises, a management consulting and contract research firm in Walnut Creek, CA. This firm specializes in electro-technologies, food safety, processed foods, aseptic processing and packaging. Dr. Graham retired from his position as Director of Technical Services for Del Monte Foods in 1991. This position was the culmination of a distinguished 35-year professional career in academic, research, and product development related positions in the food industry. During his association with EPRI over the last seven years, Dr. Graham established and has served as technical advisor to the EPRI Food Technology Center (1995) and the EPRI Food Technology Alliance (1997). Dr. Graham also has been involved in many of the on-site tests conducted with the MTDU over the last nine years.

Dr. Jurgen Strasser - Process Engineer

Dr. Strasser, also an n associate of WATERTECH PARTNERS, also serves as President of PROCESS AND EQUIPMENT TECHNOLOGY in Lafayette, CA. Dr. Strasser started P&ET after retiring from Del Monte in 1994. Before leaving Del Monte, Dr. Strasser oversaw construction of the MTDU. Since 1994, Dr. Strasser has been a consultant to the EPRI Food and Agriculture Technology Program. In this capacity, he arranged and assisted in the performance of many of the MTDU on-site water treatment tests conducted at over 50 locations over the last nine years. From this experience, Dr. Strasser has gained first-hand knowledge of the actual performance of many different types of membranes and pretreatment systems, as well as personal contacts at most leading firms in the water-treatment equipment business. Prior to working as a process-engineering manager at the Del Monte Research Center in Walnut Creek, CA, he worked in the agricultural equipment division of FMC Corporation. Dr. Strasser, who received his masters and doctorate in Chemical Process Engrg. from the University of Munich, and has made over 80 presentations on food processing and water treatment technologies, published technical articles in 18 publications, and holds nine U.S. patents.

Edwin B. Orrett

EMPLOYMENT HISTORY

- 1989 - Present: Principal, Pacific Technology Associates.
Develop strategic applications of proven technologies that pay for themselves by using less water, energy, and material resources than conventional practice. Areas of emphasis include industrial water and wastewater, municipal water conservation planning, and environmental policy analysis.
- 1985 - 1988: Chief Executive Officer, Bio Energy, Inc.
Developed commercial process for recovering nutrients and energy from dairy manure using anaerobic digestion (emphasized multi-farm facilities; byproduct development)
- 1983 - 1985: National Conservation Corp. / REEP, Inc.
Vice President, R&D: evaluated energy conservation programs.
Manager, Pennsylvania Operations: hired, trained and supervised a staff of 42 employees while directing a \$1 million residential energy conservation project.
- 1980: Planning Consultant (California General Plans)
- 1979: Manager, Marin Environmental Co-op, a multi-commodity recycling center.
- 1975 - 1978: Civil Engineer, Stetson Engineers, Inc., San Francisco, CA.
Conducted water rights research, water systems appraisals, hydrologic studies, environmental reviews, and designed water supply systems for public and private clients.
- 1971 - 1975: Civil Engineer Corps Officer, U. S. Navy.
Assigned to a Construction Battalion (Seabees). Major responsibilities: all construction materials for 1,000 man construction force at Diego Garcia (Indian Ocean); Officer-in-Charge of all Battalion construction projects in Japan for nine month deployment (three sites and 75 men). Final rank: Lieutenant.

EDUCATION

- 1982: M.S., Ecology, University of California at Davis
1971: B.S., Civil Engineering, University of California at Berkeley

HONORS

U.S. Navy: consistently rated in top one percent of peers; recommended for early promotion.
Academic: Member Chi Epsilon, Tau Beta Pi (honorary engineering fraternities).

OTHER

Professional Civil Engineer (California Registration C26331)
Member: US and International Societies for Ecological Economics, American Water Works Association, Petaluma Area Chamber of Commerce

Support Letters

Petaluma Poultry Processors

Congresswoman Lynn Woolsey (California 6th Congressional District)

California Energy Commission

Sonoma County Supervisor Mike Kerns

Sonoma County Water Agency

The Bay Institute of San Francisco

California State Coastal Conservancy

Petaluma Chamber of Commerce

WaterKeepers

Friends of Russian River

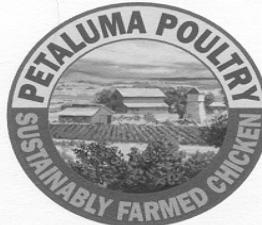
Petaluma Wetlands Park Alliance

Petaluma River Council

Petaluma Tomorrow

Petaluma River Authority

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TEL. (707) 763-1904 • FAX 707 763-3924 • 800 556-6789
PO BOX 7368, 2700 LAKEVILLE HWY., PETALUMA CA 94955-7368
WWW.PETALUMAPOULTRY.COM

February 26, 2002

Ms. Marsha Prillwitz
California Department of Water Resources
Office of Water Use Efficiency
P.O. Box 942836
Sacramento, CA 94236-0001

Re: Water and Energy Use Efficiency Improvement Project at Petaluma Poultry

Dear Ms. Prillwitz:

Petaluma Poultry is honored by the prospect of partnering with the City of Petaluma to fully implement the innovative water efficiency project that we have long been working towards with our current team: WaterTech Partners, the University of California at Davis, and the USDA. In addition, the precedent-setting research required to date could not have been accomplished without the financial contribution of the California Energy Commission. Today as we stand positioned to move to the next step of capitalizing the project, we ask for your support.

A water-saving project at our facility will provide significant, quantifiable benefits for the public sector. In this case, the present value of the financial benefit to the City of Petaluma for water and wastewater services avoided by our project is estimated (in the independently produced project report) to exceed \$1.7 million over the first ten years alone. In light of this, and of the current financial challenges of local government, we find it fortuitous that DWR, with its grant program, provides the opportunity to supply \$1.1 million to the City to match our own investment in the project.

Petaluma Poultry, having recently contributed \$400,000 toward this project in new equipment, would commit to spend an additional \$700,000, during the time schedule set forth, with the proviso that actual costs do not differ significantly from the estimates.

Petaluma Poultry is also pleased to note that additional benefits, such as the virtual elimination in the discharge of chlorinated compounds, will be provided. Although difficult to mark in the City's books, or ours, these will surely appear as credits in nature's accounts.

Home of Rocky the Range Chicken 

**OUR FARMING METHODS STRIVE TO CREATE HARMONIOUS RELATIONSHIPS IN NATURE
SUSTAINING THE HEALTH OF ALL CREATURES AND THE NATURAL WORLD.**

We look forward to participating in this project, and of taking a leadership role for the rest of our community by demonstrating the value of resource efficient business practices.

Sincerely,

A handwritten signature in black ink, appearing to read "Darrel Freitas". The signature is fluid and cursive, with the first name "Darrel" and last name "Freitas" clearly distinguishable.

Darrel Freitas
President

LYNN WOOLSEY
6TH DISTRICT, CALIFORNIA

COMMITTEES:
SCIENCE
RANKING MEMBER, SUBCOMMITTEE ON ENERGY
EDUCATION AND THE
WORKFORCE
STEERING
E-MAIL ADDRESS:
lynn.woolsey@mail.house.gov
WEB PAGE ADDRESS:
<http://www.house.gov/woolsey/>

Congress of the United States
House of Representatives
Washington, DC 20515-0506

February 27, 2002

WASHINGTON OFFICE:
2263 RAYBURN BUILDING
WASHINGTON, DC 20515-0506
TELEPHONE: (202) 225-5161
DISTRICT OFFICES:
1101 COLLEGE AVE., SUITE 200
SANTA ROSA, CA 95404
TELEPHONE: (707) 542-7182
NORTHGATE BUILDING
1050 NORTHGATE DRIVE, SUITE 140
SAN RAFAEL, CA 94903
TELEPHONE: (415) 507-9554

Ms. Marsha Prillwitz
California Department of Water Resources
Office of Water Use Efficiency
P.O. Box 942836
Sacramento, CA 94236-0001

Re: Water and Energy Use Efficiency Improvement Project at Petaluma Poultry
Processor

Dear Ms. Prillwitz:

I am pleased to offer my support for the City of Petaluma's application for a Proposition 13 Urban Water Conservation Capital Outlay Grant. The project for which this grant is intended, a novel method for treating and reusing process water within Petaluma Poultry Processor's facility, will open the way to significant water and energy savings throughout the poultry processing industry.

This project is also extremely important for helping to launch the City of Petaluma's innovative Commercial, Institutional and Industrial (CII) Water Efficiency Program. Built upon the framework offered by the California Urban Water Conservation Council, this seeks to "hold the flow" by offsetting the growth in demand expected by the CII sector over the next ten years. This project will provide significant economic and ecological benefits and provide critical support for the City's efforts.

The City of Petaluma has already shown through a model project at a local clothing factory, their commitment to water conservation. Their "Misha" project resulted in significant reductions in both energy and water use through management strategies and efficiency improvements and won the City national recognition through the U.S. Environmental Protection Agency's "Environmental Heroes Award."

I am proud to recommend the City of Petaluma's proposal for Petaluma Poultry Processing Facility and trust that it will also earn you support.

Sincerely,



Lynn Woolsey
Member of Congress

cc: Tom Hargis, City of Petaluma

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STATE OF CALIFORNIA • THE RESOURCES AGENCY

GRAY DAVIS, Governor

CALIFORNIA ENERGY COMMISSION

ARTHUR H. ROSENFELD, COMMISSIONER
1516 NINTH STREET, MS-35
SACRAMENTO, CA 95814-5512
(916) 654-4930
FAX (916) 653-3478
ARosenfe@energy.state.ca.us



February 27, 2002

Ms. Marsha Prillwitz
Department of Water Resources
Office of Water Use Efficiency
1416 Ninth Street, Room 338
Sacramento, California 95814

Re: Proposition 13 Urban Water Conservation Grant Proposal:
Water- and Energy-Use Efficiency Improvement Project at
Petaluma Poultry Processors as a Leadoff Project for City of
Petaluma's Industrial Water Efficiency Program.

Dear Ms. Prillwitz:

I am writing to support the City of Petaluma's request for a Proposition 13 Urban Water Conservation Program grant to cover part of the capital costs for implementing for the above-cited project at Petaluma Poultry Processors (PPP).

This proposed Proposition 13 project at PPP represents the follow-on commercialization project to a successful Public Interest Energy Research (PIER) project conducted by the California Institute Food and Agricultural Research and Water Tech Partners over the last three years. Phase II of this PIER project (in-plant pilot testing) was performed at PPP from June to October 2001. The Commission provided \$520,912 of the nearly \$700,000 in total R&D costs that were expended for developing the new water recycling and sanitation process that PPP will implement as part of this proposed Proposition 13 project.

In addition to achieving a substantial reduction in water use on a per-unit basis, the new production process will enable PPP to achieve a projected 8% improvement in energy efficiency for electricity use related to water supply, treatment and chilling and conversion to a chlorine-free sanitizing method. Several other poultry processing facilities in California are potential users of this new poultry production process. Thus, the proposed project has potential statewide water and energy benefits worthy of support by our respective agencies.

Ms. Marsha Prillwitz
February 27, 2002
Page 2

I would also like to acknowledge and commend the excellent performance of WaterTech Partners on the PIER project and the outstanding cooperation PPP provided during the phase of the PIER project conducted at PPP's plant. We are very pleased with the results of the PIER project, and would expect that the Department of Water Resources would be equally pleased with the results of a Proposition 13 project involving these two firms.

If you need further technical details from the Commission, please contact Wendell Bakken at (916) 654-4042.

Sincerely,

A handwritten signature in cursive script that reads "Art Rosenfeld".

ARTHUR H. ROSENFELD

AHR/WB:sh

COUNTY OF SONOMA
BOARD OF SUPERVISORS
575 ADMINISTRATION DRIVE, RM. 100A
SANTA ROSA, CALIFORNIA 95403

(707) 565-2241
FAX (707) 565-3778

EEVE T. LEWIS
COUNTY CLERK



MIKE KERNS
SUPERVISOR, SECOND DISTRICT

mkerns@sonoma-county.org

February 26, 2002

Ms. Marsha Prillwitz
California Department of Water Resources
Office of Water Use Efficiency
P.O. Box 942836
Sacramento, CA 94236-0001

Re: Water and Energy Use Efficiency Improvement Project
at Petaluma Poultry Processors

Dear Ms. Prillwitz:

In my capacities as both the Supervisor representing the area that includes Petaluma, and a Director of the Sonoma County Water Agency, I take special pleasure in recommending that project proposed by the City of Petaluma for Petaluma Poultry Processors deserves a place at the top of your list.

I am personally familiar with the opportunity at Petaluma Poultry Processors. I also know that the concept of saving water, energy, and chemicals in an integrated fashion is extremely beneficial, having seen this demonstrated on a smaller scale by two earlier projects in Petaluma. This is the key to substantial economic and environmental value, and I look forward to realizing this opportunity to demonstrate this on a scale that is significant for Sonoma County, if not beyond.

This project is important to our deliberations of how to address increasingly vexing resource issues. While the earth's physical resources are ultimately limited, our imagination is not. This opportunity to couple technical ingenuity with creative financing is clearly something we need to pursue.

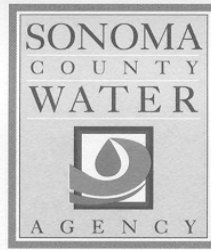
Please let me know if there is anything I may do to assist implementing this project.

Sincerely,

Mike Kerns
Second District Supervisor

MHK:jl:

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FILE:WC/40-0-1 PETALUMA, CITY OF (WATER
CONSERVATION PROGRAM)

February 25, 2002

Ms. Marsha Prillwitz
California Department of Water Resources
Office of Water Use Efficiency
P O Box 942836
Sacramento, CA 94236-0001

**RE: WATER AND ENERGY USE EFFICIENCY IMPROVEMENT PROJECT AT PETALUMA
POULTRY PROCESSORS**

Dear Ms. Prillwitz:

The Sonoma County Water Agency (SCWA) is the principal water supplier for the City of Petaluma and other agencies throughout Sonoma and northern Marin Counties. Empowered as it is by California state legislation to, among other things, produce and deliver potable water for municipal and industrial uses, and to prevent the diminution of water supplies, SCWA fully supports the City of Petaluma's (City) request for a grant of \$1.1 million for the innovative project at Petaluma Poultry Processors.¹

The project described for Petaluma Poultry Processors is embedded on a trajectory that began four years ago when the City, with support from The Bay Institute of San Francisco and Pacific Technology Associates, took advantage of a small grant from the Rose Foundation to explore water efficiency as a pre-emptive response to industrial water pollution. The City's path since then continues to reflect an unusually cooperative multi-party effort that the SCWA has been proud to assist. The City and SCWA (with staff assistance and provision of \$30,000 in monitoring equipment) cooperated to develop two demonstration projects – one at Mishi Apparel, and another for SOLA Optical USA. These efforts, which identified the value of going beyond water audits to evaluate comprehensive resource efficiency improvements, led to an award from the U.S. Environmental Protection Agency.

Building upon the California Urban Water Conservation Council's Best Management Practices, accomplishments elsewhere (notably Seattle Public Utilities), and its own experience, the City of Petaluma is planning a citywide program that aims to stabilize water demand in the CII sector over the long term. Necessary to launch such an ambitious program is a large scale, highly visible success story that provides tangible value to government, business, and environmental organizations. For this purpose, one could not wish for a project better than the one the City proposes at Petaluma Poultry Processors.

Thank you for your strong consideration.

Sincerely,

A handwritten signature in dark ink, appearing to read "Randy Poole".

Randy Poole
General Manager/Chief Engineer

jb:rs3/u/cl/jablodow/erpad/hulme/ppp support ltr.doc

¹ In response to your Consolidated Water Use Efficiency 2002 Proposal Solicitation Package
P.O. Box 11628 - Santa Rosa, CA 95406 - 2150 W. College Avenue - Santa Rosa, CA 95401 - (707) 526-5370 - Fax (707) 544-6123

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Celebrating 20 years of protecting and restoring the
Bay-Delta-Rivers ecosystem, from the Sierra to the sea.

February 25, 2002

BOARD OF DIRECTORS

Robert J. Erickson
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Huali G. Chai

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John C. Racanelli

Felix E. Smith

C. John Suen

Nancy C. Swadesh

EXECUTIVE DIRECTOR

Grant Davis

FOUNDER

Bill Davoren

Ms. Marsha Prillwitz
California Department of Water Resources
Office of Water Use Efficiency
P.O. Box 942836
Sacramento, CA 94236-0001

Dear Ms. Prillwitz:

On behalf of the Board of Directors of The Bay Institute (TBI), I am writing to express our strong support for the City of Petaluma's application for a \$1.1 million grant for a Water and Energy Use Efficiency Improvement Project.

This innovative project is designed to treat and reuse process water within Petaluma Poultry Processor's facility -- the only producer of certified organic chickens in the nation. It will also provide significant water and energy savings. This application has evolved from several pilot projects and efforts to develop a model CII Water Efficiency Program with our colleagues at the City of Petaluma, the Sonoma County Water Agency and Pacific Technology Associates. This project will be a clear success story and greatly assist our efforts to develop and refine the CII Water Efficiency Program.

We are quite pleased to support the City of Petaluma's Water and Energy Use Efficiency Improvement Project at Petaluma Poultry Processors. Thank you for your serious consideration of this worthwhile project.

Sincerely,

Grant Davis
Executive Director

[INTENTIONALLY BLANK]



February 27, 2002

Ms. Marsha Prillwitz
California Department of Water Resources
Office of Water Use Efficiency
P.O. Box 942836
Sacramento, CA 94236-0001

Re: Water and Energy Use Efficiency Improvement Project at Petaluma Poultry Processors

Dear Ms. Prillwitz,

As Program Manager of the San Francisco Bay Area Conservancy Program of the California Coastal Conservancy I work with partners throughout the Bay Area on projects to protect, restore, and enhance natural habitats and open-space resources of regional importance. I am pleased to support the City of Petaluma's grant application for the water reuse efficiency project at the Petaluma Poultry Processing Plant because it will clearly improve the water quality of the Bay. The innovative treatment and reuse of process water will result in a reduction of pollutants into the Petaluma River which drains into the San Francisco Bay. The reduced water usage resulting from this project will also benefit the Bay.

The rapid growth of population in Sonoma County continues to place negative impacts on the natural habitat of the Petaluma River and Marshlands. We strongly support projects like this one that will reduce those impacts while setting a precedence for using innovative methods for improving the quality of the natural habitats associated with the San Francisco Bay.

Sincerely,

Nadine Hitchcock
Program Manager
San Francisco Bay Area Conservancy



1330 Broadway, 11th Floor
Oakland, California 94612-2530
510-286-1015 Fax: 510-286-0470

C a l i f o r n i a S t a t e C o a s t a l C o n s e r v a n c y

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PETALUMA AREA
CHAMBER OF COMMERCE

The Petaluma Area Chamber of Commerce is an association of businesses and professions working together with a commitment to support and improve a healthy business community in order to enhance the quality of life in the greater Petaluma area.

800
BAYWOOD
DRIVE,
SUITE B

PETALUMA,
CALIFORNIA
94954

TELEPHONE:
(707) 762-2785

FAX:
(707) 762-4721

E-MAIL:
pacc@petaluma.org

URL:
www.petaluma.org

February 26, 2002

Ms. Marsha Prillwitz
California Department of Water Resources
Office of Water Use Efficiency
P.O. Box 942836
Sacramento, CA 94236-0001

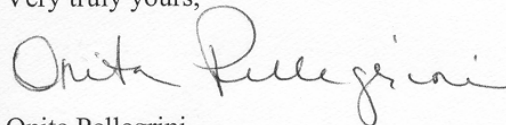
Re: Water and Energy Use Efficiency Improvement Project at
Petaluma Poultry Processors

Dear Ms. Prillwitz:

The Petaluma Area Chamber of Commerce enthusiastically supports the City of Petaluma's application for a grant toward the project proposed at Petaluma Poultry Processors. This will allow a vital member of our local business community to significantly expand its production without increasing its water demand. The improvements will also provide a more environmentally friendly production process overall, a feature in natural alignment with the healthy agricultural products that Sonoma County is known for.

The scale of this project is significant, as is the level of effort extended to prepare it for full-scale implementation. With the active assistance of the Petaluma Chamber, and especially its Economic Development, River, and Sustainability committees, this project will become known throughout Petaluma and beyond. More importantly, its success will prove enormously helpful for stimulating the similar efforts throughout our business community that the City is preparing to support.

Very truly yours,



Onita Pellegrini
Chief Executive Officer

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WaterKeepers

Ms. Marsha Prillwitz
California Department of Water Resources
Office of Water Use Efficiency
P.O.Box 942836
Sacramento, CA 94236-0001

February 26, 2002

Re: Petaluma Poultry Processors Water and Energy Use Project

Dear Ms. Prillwitz:

As the Petaluma Riverkeeper, a member of Waterkeepers Northern California, I ask for your support in funding the innovative water re-use project at Petaluma Poultry Processors. It would result in an estimated reduction of the 7 tons a year of free chlorine and chlorinated by-products discharged into the city's water treatment plant, which sits on the banks of the Petaluma River. This 95% reduction of toxic chemicals would help protect the Petaluma River and San Francisco Bay from harmful pollution.

The Petaluma River is already impacting the Bay with toxic chemicals and heavy metals. We believe this project would not only help to alleviate some of that damage, but would serve as a role model for other industries along our waterway; both in conserving water and reducing pollution.

Please review this proposal with an eye toward its many benefits to water quality and conservation of water resources. Your support in funding it would be a boon to our waters.

Sincerely,

David Yearsley
Petaluma Riverkeeper

San Francisco BayKeeper DeltaKeeper Petaluma RiverKeeper

WaterKeepers Northern California, Presidio Building 1004, POB 29921, San Francisco, California 94129-0921 P 415.561.2299 F 415.561.2290 www.baykeeper.org

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2/26/2002 15:51 0

PAGE 0

Friends of the Russian River***P.O. Box 1836******Heseltburg, CA 95448***

February 25, 2002

Ms. Marsha Prillwitz
California Department of Water Resources
Office of Water Use Efficiency
P.O. Box 942836
Sacramento, CA 94288-0801

Re: Water and Energy Use Efficiency Improvement Project at Petaluma
Poultry Processors

Dear Ms. Prillwitz,

I have had the opportunity to review the proposal for the water reuse efficiency project at the Petaluma Poultry Processing Plant. As President of the Board of the Friends of the Russian River I am involved in a wide range of projects and programs that purport to benefit the watershed and natural resources of this important river system. It is rare that one comes along that combines authentic expertise and committed, competent participants directed toward a significant and important outcome. The PPP project is most definitely one of these unusual opportunities.

As a professional ecologist with over 30 years experience in the field in wastewater technology I can endorse the PPP project with whole heart. Water Tech Partners has defined a superb and truly innovative project. Ned Orrett, the engineer most intimately involved with water conservation efforts in Sonoma County, is unique in his ability to integrate a detailed analysis of water usage into workable programs that not only increase the profit margin of clients but also relieve the pressure on our vital fresh water resources. The City of Petaluma has long been a leader in pursuing realistic municipal programs that recognize broader habitat preservation goals as they move toward programs that enhance the economic base of the human community. For a private entity like PPP to work with these individuals and organizations is almost unheard of. Opportunities such as this need to be nurtured so that they can provide an example to the entire community that depends on our vital water resources.

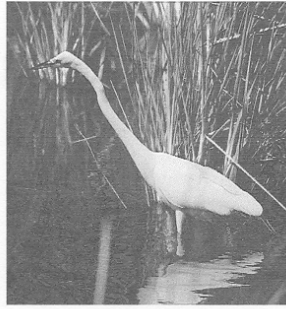
The Russian River watershed, supplemented by substantial releases from the Eel River, provide almost all of the water for over half a million domestic, industrial and agricultural users in Mendocino, Sonoma and Marin County. The steady growth of both population and economic activity in this region presents an

awesome threat to the natural habitat of this watershed, as well as its long-term sustainability for economic gain.

Friends of the Russian River is committed to protection of these vital interests, most prominently the natural habitat value of the watershed. It is heartening to see agencies, municipalities, professional engineers and private industrial interests working rationally toward goals that are consistent with habitat interests. I cannot be strong enough in my endorsement of this program and urge you most emphatically to support it in every respect.



Dr. Daniel Wickham
President of the Board
Friends of the Russian River



Petaluma
Wetlands
Park
Alliance

Ms. Marsha Prillwitz
California Department of Water Resources
Office of Water Use Efficiency
P.O. Box 942835
Sacramento, CA 94236-0001

February 26, 2002

Re: Water and Energy Use Efficiency Improvement Project at Petaluma Poultry Processors

Dear Ms. Prillwitz:

On behalf of the Petaluma Wetlands Park Alliance, I am writing you to urge your support of the above referenced project.

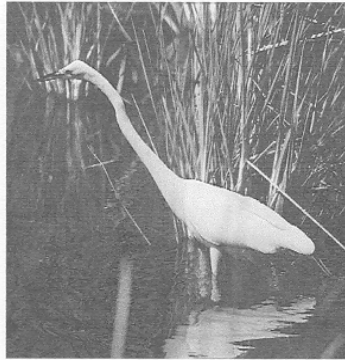
The Petaluma Wetlands Park Alliance is a grassroots organization of concerned Petaluma citizens who support construction of polishing wetlands as a functional part of Petaluma's planned wastewater treatment plant. We also support creation of a wetlands park and wildlife sanctuary to enhance the lives of Petaluma residents, visitors and the natural habitat. Our organization has wide support from the citizens of Petaluma. We generated over 1,000 signatures in just over one week to urge our City Council to move forward with the creation of a wetlands water treatment facility and park.

We support Petaluma Poultry Processors' water and energy use project because of the attention it gives to reducing water demand, which will prevent damage to upstream habitat. Furthermore, it is a constructive step in reducing carbon emissions to an appropriate level.

Petaluma Wetlands Park Alliance, 521 Walnut Street, Petaluma, Ca, 94952, 763-2310

Chairman: David Yearsley, 763-7756, dmy@Sonic.Net

Treasurer: Sylvan Eidelman, 528-2916, Sylvan_Lee@yahoo.com



Petaluma
Wetlands
Park
Alliance

The project is an important demonstration of “clean production” methods which ultimately benefits life everywhere.

The scale of the project, similar to the Wetlands Park, is sufficiently large to stimulate additional projects that will align with a healthy future for our community and our state. The City’s work to create a program to support significant water efficiency is noted with appreciation.

Please give this project your support. We consider it a history making opportunity to support groundbreaking water and energy conservation methods which benefit a local business, as well as the environment.

Regards,


Elizabeth Howland, Secretary
Petaluma Wetlands Park Alliance

Petaluma Wetlands Park Alliance, 521 Walnut Street, Petaluma, Ca, 94952, 763-2310

Chairman: David Yearsley, 763-7756, dmy@Sonic.Net

Treasurer: Sylvan Eidelman, 528-2916, Sylvan_Lee@yahoo.com

**Petaluma River Council**

P.O. Box 750501
1327 "I" St.
Petaluma, CA 94952
(707) 763-9336

February 26, 2002

Ms. Marsha Prillwitz
California Department of Water Resources
Office of Water Use Efficiency
PO Box 942836
Sacramento, CA 94236-0001

RE: Water and Energy Use Efficiency Improvement Project at Petaluma Poultry Processors

Dear Ms. Prillwitz:

The Petaluma River Council is very pleased to offer you our highest recommendation for support of the proposed water and energy use efficiency Project in Petaluma.

This proposal is an extraordinary opportunity to bring to life a very important project. This is groundbreaking work for the agricultural industrial sector, which, undoubtedly in response to regulatory directives, historically consumes large quantities of water and energy. The Project will demonstrate that this does not have to be the case. The water processing systems to be installed at Petaluma Poultry Processors will introduce a new way for food processors to not only protect the product quality for consumers, but also to expand this protection to include the larger environment upon which all of life depends. Given the increasing California and world-wide demands on limited supplies of clean potable water, and the effects of industrial wastes, this proposal is of regional, national and international significance.

This Project, if implemented, can demonstrate novel, ingenious and cost-effective ways to reduce demands on the built systems for the supply, treatment, and transmission of fresh potable water, as well as reducing demands for collection, treatment and disposal of wastewaters. The avoided capital costs of water infrastructure as well as operations and maintenance, both in the public and private sector, are potentially large enough to help fund the changes proposed. Reduced usage of water, energy, wastewater and chemicals represents real savings to cities and industries trying to stay competitive, and will help keep this agricultural infrastructure base in Sonoma County.

These reduced demands, of course, also reduce the requirements for water from the natural systems used for supply. This Project can significantly address ways to reduce the demands for increased diversions from the already impacted Russian and Eel Rivers and from our overdrafted groundwaters to feed Sonoma and Marin Counties' desires and needs, by ultimately reducing withdrawals while accommodating real economic growth in the region.

The Project can also help address the water quality problems of the Petaluma River, a water quality limited segment with perhaps the worst quality inflows to San Pablo Bay. By reducing flows and loads to Petaluma's Waste Water Treatment Plant, the outcome of this work will reduce the risks and costs of treatment and discharges from the WWTP to these water bodies, particularly as the shallow water discharge standards are tightened up over time.

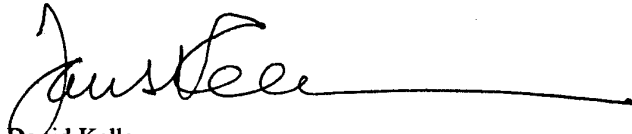
For over 12 years, the Petaluma River Council has been an advocate for the protection, enhancement and restoration of the Petaluma River, its tributaries, wetlands, marsh and watershed. During my term as a Petaluma City Councilmember, I personally worked hard to improve the Petaluma River watershed and provide for sustainable potable water supplies and advanced wastewater treatment facilities for our community. I have been honored and privileged over the years to view and support Mr. Orrett's work through the perspective of both the public sector as well as the environmental advocate. I believe firmly that the proposed Project is of enormous current and future value, and that it deserves the greatest levels of support.

USDA has already provided approvals for the cornerstone of this approach: treatment and reuse of process water, a national first. US EPA has recognized these working efficiency concepts in prior local pilot projects to be of national importance. Petaluma Poultry Processors (producers of "Rocky" and "Rosie" natural and organic chickens distributed nationwide), the California Energy Commission, the City of Petaluma and the Sonoma County Water Agency are providing significant investments in this approach. Successful implementation of this proposed project in a food processing plant will underscore the validity and value of these efforts worldwide.

We hope that California Department of Water Resources will also be a key player by supporting this important water and energy use efficiency project at the full requested funding level.

If I can be of any further assistance in your assessment of this project proposal, please do not hesitate to contact me.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Justice", followed by a long horizontal line extending to the right.

David Keller
Director
Petaluma River Council

**PETALUMA TOMORROW
1557 MAURO PIETRO DRIVE
PETALUMA, CA 94954**

phone: (707) 782 - 1038
FAX: (707) 658 - 1882

February 27, 2002

Ms. Marsha Prillwitz
California Department of Water Resources
Office of Water Use Efficiency
P.O. Box 942836
Sacramento, CA 94236 - 0001

Re: Water and Energy Use Efficiency Improvement Project at Petaluma Poultry Processors

Dear Ms. Prillwitz:

After careful study, Petaluma Tomorrow gives its full support to the Petaluma Poultry Processors water and energy efficiency improvement project.

We are a community based citizens organization dedicated to open government, responsible growth, and sustainable watershed management. The proposed project is a major advance towards our goal of better managed use of our limited freshwater resources and more efficient reuse of industrial processing water. We believe that this particular project is a breakthrough application for important environmental advancement in the poultry processing industry.

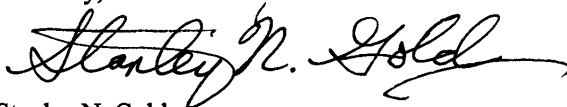
Due in part to Federal regulations, the current use of fresh water in poultry processing is very intensive. The proposed project would provide for an increase in production capability *without* the need for huge quantities of additional fresh water. This would benefit our community by conserving our existing freshwater supply for other beneficial purposes. Additionally, benefits from the increased poultry production would flow into the community from potentially increased employment and tax revenues.

We are particularly impressed with the substitution of ozone for chlorine in this project. This technology reduces the chlorinated byproducts that are currently discharged to our waterways by an eye opening 95%.

Ned Orrett, one of the engineers associated with this project is known to us. He has demonstrated his expertise in recently completing two small, but highly successful projects involving industrial water conservation and reuse in Petaluma.

We can think of no negatives in this project and, without reservation, recommend its funding.

Sincerely,



Stanley N. Gold
- for the Board of Directors,
Petaluma Tomorrow

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February 25, 2002

Ms. Marsha Prillwitz
California Department of Water Resources
Office of Water Use Efficiency
P.O. Box 942836
Sacramento, CA 94236-0001

Re: Water and Energy Use Efficiency Improvement
Project at Petaluma Poultry Processors

Dear Ms. Prillwitz:

The Petaluma River Authority is a citizens advisory committee comprised of community benefit organizations and local law enforcement with approximately 140 individuals dedicated to the well being, enhancement and public use of the Petaluma River. (Please see the attached roster of participating organizations and individuals, as reference.)

The mission statement of the Petaluma River Authority is to create an advisory board of experts, citizens and agencies dedicated to providing support, coordination, guidance and the establishment of prioritized goals for river related issues and improvements

Given that the establishment and use of innovative water treatment and management practices can only positively effect the quality of the Petaluma River, The Petaluma River Authority and Petaluma Visitors Program support the City of Petaluma's application for a grant toward the project proposed at Petaluma Poultry Processors.

This will allow a vital member of our local business community to significantly expand its production without increasing its water demand. The improvements will also provide a more environmentally friendly production process overall, a feature in natural alignment with the healthy agricultural products for which Sonoma County is internationally known.

The significant support offered by the entire community for this project is extensive, and The Petaluma River Authority is glad to add further momentum to this support.

Sincerely,

Jessica Vann Gardner
Co-Chair, Petaluma River Authority
Executive Director, Petaluma Visitors Program

John FitzGerald
Co-Chair, Petaluma River Authority

Petaluma Visitors Program

Phone: (707) 769-0429 ♦ Toll Free: 1-877-2-PETALUMA ♦ Fax: (707) 762-4721 ♦ E-mail: info@visitpetaluma.com.

Petaluma Area Chamber of Commerce 800 Baywood Drive, Suite A Petaluma, CA 94954 www.visitpetaluma.com

Petaluma Visitors Program/Petaluma River Authority

Feb. 2002

Petaluma Yacht Club	AI	Alys	P.O. Box 925	707-763-5823	707-763-5833	alays@gattbi.com
CA Dept. of Boating & Waterways	Kevin	Atkinson	2000 Evergreen Street, Suite 100	888-326-2862		
	John	Ball, Jr.	2186 St. Augustine Circle	707-766-8687	707-776-2214	jball@tlanilk.com
Re-Max	Karren	Beit*Newman		707-769-5555	707-769-0160	karren@remax-marina.com
Petaluma Business, Editor	Don	Bennett	1717 Pine Avenue	707-763-5343	707-763-1985	dbenn@aol.com
Sonoma County Sheriff's Dept.	John	Blenker, Deputy	600 Administration Dr. Rm. 103-J	707-433-0728	707-431-9223	jblenker@sonoma-county.org
Petaluma Coffee & Tea Co.	Gardner & Sheila	Bride	189 H St.	707-763-2727	707-763-2727	beans@petalumacoffee.com
No. Co Railroad Authority, Exec. Director	Max	Bridges	P.O. Box 279	707-894-1595	707-894-1597	max.bridges@northcoastrailroad.org
Robert Half International Accountemps	Dee	Brillhart	438 First Street, Suite 440	707-578-3355	707-568-6391	dee.brillhart@accountemps.com
Marin County Supervisor	Harold C	Brown, Jr.	3501 Civic Center Dr. Rm. 329	415-499-7331	415-499-3645	hbrown@marin.org
City Of Petaluma, Vice Mayor	Janice	Cader-Thompson	732 Carlsbad Court	707-778-4345	707-778-4419	jthomp44@pon.net
Carlie-Macy	Donald	Campau	720 Petaluma Blvd. S #30	707-762-8683		gloriadoc@softcom.net
City Of Petaluma, Parks & Rec. Dir.	Richard G.	Carlie	15 Third Street	707-542-6451	707-542-5212	dcarlie@carlienacy.com
	James	Carr	320 No. McDowell Blvd.	707-778-4380	707-778-4473	jcarr@ci.petaluma.ca.us
	Geoff	Cartwright	56 La Rocca Drive	707-763-2883		
U.S. Coast Guard MSO, San Francisco Bay	Lt. Drew	Cheney	Coast Guard Island, Bldg. 14	510-437-2770	510-437-3072	Acheney@d11.uscg.mil
City of Petaluma Police Dept.	Mike	Cook, Lt.	969 Petaluma Blvd. North	707-778-4451 #3	707-778-4476	mcook@ci.petaluma.ca.us
	Tom	Corbett	1243 B St.	707-775-3636	707-775-3636	yosmitcorb@yahoo.com
Dept. of Fish & Game/Fishery Biologist	Bill	Cox	8699 Mill Station Road	707-823-1001		billcox@dfg2.ca.gov
Petaluma Historical Museum & Library	Mary Ann	Curme	9 Kazen Way	707-763-9564		pogomac@earthlink.net
North Marin Water District	Chris	DeGabriele	P.O. Box 146	415-897-4133	415-892-8043	dgabriele@nmwd.com
	Dave	Denton	1505 Debra Drive	707-762-4017	707-762-4017	aroundtowntv@hotmail.com
Council for Community Television	Joe	DeVito	PO Box 2510	707-766-8269		tdewitt@sonoma-county.org
Administrative Aide for Mike Kerns, 2nd Dist.	Tricia	DeWitt	575 Administration Dr. Rm.100A	707-565-2241	707-565-3778	wolfsong001@earthlink.net
	Cathleen	Evangelista	5 Scenic Way	707-766-9218		info@cavanaghinn.com
Cavanagh Inn	Ray & Jeanne	Farris	10 Keller St.	707-765-4657	707-769-0466	JohnF@csws2.com
FitzGerald & Associates	John	FitzGerald	1010 Lakeville St., Suite 28	707-762-0667	707-778-9217	rwfoerke@dfg.ca.gov
Dept. of Fish & Game/Regional Manager	Robert	Floerke	P.O. Box 47	707-944-5517	707-944-5563	wgroop@aol.com
Archaeological Resource Service	Ms. Katherine	Flynn	122 American Alley, Suite A	707-762-2573	707-762-1791	samantha@petalumadowntown.com
Petaluma Downtown Assoc.	Samantha	Freitas	#7 Fourth Street, Suite 61	707-762-9348	707-762-4317	wendy.friedel@mail.house.gov
District Dir. of Congresswoman Woolsey's Office	Wendy	Friedel	1101 College Ave. Ste. 200	707-542-7182	707-542-2745	lgala@spd.usace.army.mil
U. S. Army Corps of Engineers/ San Francisco Dist.	Lynne	Galal		415-977-8712		lgame@sonic.net
	Jay	Gamel	PO Box 580	707-833-5306		m.gast@pacbell.net
Golden Eagle Shopping Center	Megan	Gast	366 Ignacio Blvd.	415-883-4646	415-883-8957	yoicg@msn.com
MMWD/Brd. Of Directors, Pres	Jack	Gibson	1534 Fifth Avenue, Suite 4	415-485-6911	415-485-6994	
Giardi's Marina	Russ	Giardi	5684 Lakeville Hwy.	707-763-7555		

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Petaluma River Property	Patrick	Glenn	40 4th St. #117	707-973-4473	707-795-1308	Goneport@hotmail.com
GM&B Advertising	Harvey	Goldberg	P.O. Box 940	707-792-9977	415-883-5903	gmbadvertising@earthlink.net
Sonoma County Sheriff's Dept.	Marc	Griffith	67C Galli Drive	415-883-7526	707-526-0403	mgullickson@sonoma-county.org
AFC	Jane	Gullickson, Deputy	600 Administration Dr. Rm. 103-J	707-433-0728	707-794-7600	jane.hamilton@afc.com
PetalumaNet	Bill	Hamilton	1465 North McDowell Blvd.	707-793-8516	707-762-6593	whammer@petalumamet.org
Accuchex	Mike	Hammerman	433 Black Oak Drive	707-762-6593	415-883-7080	mike@accuchex.com
	Jim	Hansen	365 Bel Marin Keys Blvd., 2nd Fl.	415-883-7733	707-769-084	jharberson@uno.com
City Of Petaluma, Water, Res. & Conserv. Dir.	Thomas S.	Harberson	505 Yellowstone Ct.	707-763-6575	707-778-4437	thargis@ci.petaluma.ca.us
Merle Norman Cosmetics	Phyllis	Hargis	11 English St.	707-778-4309	707-762-5624	phyllishan@home.com
Hawkins Mark Tell	April	Hart	56 B East Washington St.	707-778-8340	916-727-1822	hawkinsmarktell@hotmail.com
U.S. Army Corp of Engineers, Dir./Debris Removal Prog.	Jay	Hawkins	P.O. Box 7940	800-767-2065	415-332-0334	redhawks@sonic.net
City Of Petaluma, Councilmember	Michael	Healy	2100 Bridgeway	707-762-8768	707-778-4419	jhenderson@ci.novato.ca.us
City of Novato, Mayor	James W.	Henderson	304 Kentucky St.	415-897-4311	415-897-4354	hereth@dl1.cscg.mil
Coast Guard MSO, San Francisco Bay	Capt. Larry	Hereth, Port Capt.	900 Sherman Avenue	510-437-3135		bluespin@earthlink.net
Scott Hess Photography	Scott	Hess	Coast Guard Island, Bldg. 14	707-765-0580	415-977-8343	Jane.M.Hicks@sp002.usace.army.mil
US Army Corp of Engineers/SF Dist/Regulatory Br.	Jane	Hicks	100 Union Street	415-977-8439	707-769-0845	boyd@the-river-house.com
River House Restaurant	Boyd	Jackman	333 Market St.	707-769-0123	707-769-7839	kelmarks@svm.net
General Realty And Bldg. Co.	Jane	Jernigan	222 Weller St.	707-769-0123		skinsey@marin.org
	David	Keller	775 Baywood Drive	707-769-7793		knall@pacbell.net
Marin County Supervisor	Steve	Kinsey	1327 I St.	415-499-7331	415-499-3645	jkress@marin.org
Marin County Supervisor	Carl	Knight	33501 Civic Center Dr., Rm 329	707-778-0186	415-499-3645	fredept@ci.petaluma.ca.us
City of Petaluma, Fire Chief	John	Kress	1546 Henry Way	415-499-7331	707-765-0960	reysarc@pacbell.net
	Terry	Krout	33501 Civic Center Dr., Rm 329	707-778-4390	707-762-2129	lindnotes@yahoo.com
Architect	A.J.	Lewis	198 D St.	707-765-0950	415-977-8316	citycouncil@ci.petaluma.ca.us
Jericho Products Inc.	Robert	Lays	12 Parkside Terrace	707-795-4420	707-795-6283	frank@basin-street.com
US Army Corp of Engineers/SF Dist/So Pacific Div.	Mitch	Lind	P.O. Box 3249	707-762-7251	707-762-5892	PetCM@aol.com
City Of Petaluma, Councilmember	Brigadeer Gen., Peter T	Madsen	P.O. Box 411	415-977-8001	707-763-2227	richard.mogel@mgint.com
Basin Street Properties	Matt	Maguire	333 Market St., Rm 1101	707-795-4477	916-263-0648	emorris@arguscourier.com
U. S. Filter, Plant Manager	Frank	Marinello	626 E D St.	707-763-1918	707-765-1707	bryant@bryantmoynihan.com
Pomeroy Corporation (John Sage)	Chris	McAuliffe	1318 Redwood Way, Suite 140	707-762-5892	415-499-7331	DNAGLE1@sonoma-county.org
California Dept. of Boating & Waterways	Richard	Mogel	P.O. Box 777	707-763-1918		
Argus Courier	Carlton	Moore	P.O. Box 411	916-263-4327		
City Of Petaluma, Councilmember	Eileen	Morris	2000 Evergreen St., Ste. 100	707-762-4541		
Marin County Supervisor	Bryant	Moynihan	P.O. Box 1091	707-769-5280		
Sonoma County Sheriff's Dept.	Cynthia	Murray	P.O. Box C	707-769-7331		
	Dave	Nagle, Sgt.	33501 Civic Center Dr., Rm 329	707-433-0728		
			600 Administration Dr. Rm. 103-J			

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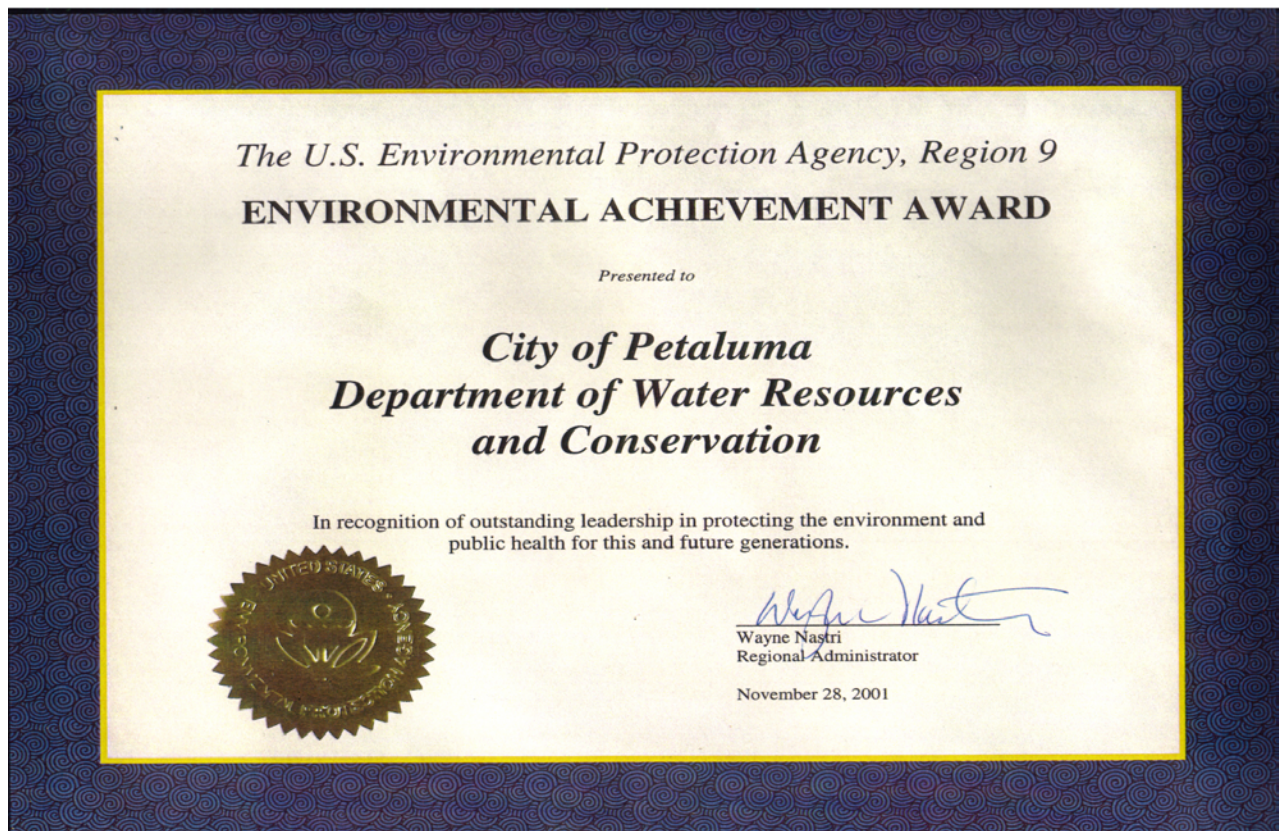
The Foundry Wharf	Mary	Neal	625 Second St. Suite 201	707-762-5999	707-762-5985	mary@foundrywharf.com
MMWD/General Manager	Pam	Nicolai	220 Nellian Avenue	415-945-1455	415-924-4600	pnicola@marinwater.org
US Army Corps of Engineers/S.F. District	Cynthia	Nielsen	333 Market St.	415-977-8702	415-977-8431	cynthia.nielsen@usace.army.mil
Petaluma Police, Boating Unit	Dennis	Nowicki	969 Petaluma Blvd. No.	707-778-4372	707-778-4476	DNowicki@ci.petaluma.ca.us
Petaluma Village Outlets	Jane	Nunez	2200 Petaluma Blvd. No.	707-778-7492	707-778-6963	jnunez@cpgi.com
City Of Petaluma, Councilmember	Mike	O'Brien	1528 Weaverly Drive	707-765-0689	707-778-4419	petalumamike@aol.com
US Army Corp of Engineers / SF Dist.	LTC Timothy S.	O'Rourke	333 Market St.		415-977-8316	
Investors Trust & AAPEX Prop. Mgmt.	Loni	Oleata	166 Kentucky Street	707-762-2706	707-781-2720	
Heritage Homes	Ross	Parkerson	414 Broadway			
Parkinson & Cassells - Attorneys	Barry	Parkinson	30 5th Street	707-762-9694	707-762-6975	parki44@hotmail.com
Haystack Marketplace	Gina	Pittler	450 Amber Way	707-763-0726	707-773-3969	ginapittler@earthlink.net
	Victoria	Plann	260 Fairview Court	707-765-1155		
Raymond James Financial Services	Jerry	Price	775 Baywood Dr. #101	707-763-7610	707-763-7882	jprice1@jfs.com
Richardson Bay Regional Agency	Bill	Price	3501 Civic Center Drive, Rm. 325	415-289-4143	415-507-4104	rbra@earthlink.net
US Army Corps of Engineers/S.F. District	Artis	Rakstins	333 Market St.	415-977-8702		
Carlie-Macy	Bill	Rinehart	15 Third Street		707-542-5212	brinehart@carliemacy.com
Petaluma Watershed Foundation	Andy	Rodgers	141 H St., Suite A	707-789-0262	707-789-0292	arodgers@econ-inc.net
Archaeological Resource Service	Bill	Roop	122 American Alley, Suite A	707-762-2573	707-762-1791	wgroop@aol.com
Marin County Supervisor	Annette	Rose	33501 Civic Center Dr., Rm. 329	415-499-7331	415-499-3645	arose@marin.org
Congresswoman Woolsey's Office	Tom	Roth	1011 College Avenue, Suite 200	707-542-7182	707-542-2745	Tom.Roth@mail.house.gov
Sonoma County Sheriff's Dept.	Roger V.	Rude, Lieutenant	600 Administration Dr. Rm. 103-J	707-565-1125	707-526-0403	rrude@sonoma-county.org
Milwood Properties	Maggie	Salenger Haywood	18000 Gehrich Road	707-935-7730	707-996-3993	maggie@vom.com
Petaluma Historical Museum & Library	Kathleen	Schmelz	2 Maier Lane	707-763-0651		
City River Committee	Fred	Schram	515 Walnut Street	707-762-2203	707-762-2203	upriver@att.net
	Mercedes	See	5636 Lakeville Hwy.	707-762-9445		
Environmental Consultant	Darnell	Shaw	2519 Truman Avenue	510-710-9649	510-568-6503	Biotope@Pacbell.net
Petaluma Historical Museum & Library	Mary	Shearer	40 Mission Drive	707-763-1646		marygrace@sabernet.com
Petaluma Adobe State Park	Sara	Skinner	3325 Adobe Road	707-762-4871	707-762-4871	skimmersara@hotmail.com
City of Petaluma, Public Facilities & Services, Dir.	Richard	Sklaadzen	22 Bassett Street	707-778-4303	707-778-4437	pubfacilities@ci.petaluma.ca.us
Basin Street Properties	Vin	Smith	1318 Redwood Way	707-793-1939	707-795-6283	vin@basin-street.com
U.S. Army Corps. Of Engineers	York	So	333 Market St./8th Floor	415-977-8467	415-977-8431	vs@spa.usace.army.mil
C.P. S. Golden Land Realty	Skip	Sommer	7 Fourth Street, Suite 61	707-763-1941	707-765-8544	skipsomm@gte.net
Pomeroy Corp.	Jeri	Sorg	P.O. Box 411	707-763-1918	707-763-2227	jerri.sorg@wgint.com
Harbor Safety Comm./o Marine Exchange/SF Bay Region	Grant	Stewart	Fort Mason Ctr. Bldg. B, Ste. 325	925-296-1909		
City Of Petaluma, City Manager	Fred C.	Stouder	11 English Street	707-778-4345	707-778-4419	citymgr@ci.petaluma.ca.us
Cinnabar Arts Corporation	Laura	Sunday	120 Eastman Court	707-778-2100#14	707-778-2191	laurasunday@attbi.com
U.S. Coast Guard MSO, San Francisco Bay	Lt. Rich	Teubner	Coast Guard Island, Bldg. 14	510-437-3101	510-437-3072	rteubner@d11.uscg.mil

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City Of Petaluma, Mayor	E. Clark	Thompson	1013 Palmetto Way	707-576-1713	707-778-4419	mayor@ci.petaluma.ca.us
Petaluma Marina	Binky	Thorsen	781 Baywood Drive	707-778-4489	707-778-4489	ship1skip@aol.com
Petaluma Sea Scouts	Barry & Binky	Thorsen	3305 Eastman Lane	707-762-0520	707-762-0520	ship1skip@aol.com
City Of Petaluma, Councilmember	Pamela	Torfiatt	27 Townview Lane	707-763-6825	707-769-4253	ptorfiatt@aol.com
Petaluma Visitors Program	Jessica	Vann Gardner	800 Baywood Dr. Suite A	707-769-0429	707-762-4721	jvg@petaluma.org
City of Petaluma, Planning Commissioner	Scott	Vouri	1557 Mauro Pietro	707-782-1038		scottvouri@yahoo.com
Basin Street Properties	Bill	White	P.O. Box 808030	707-795-4477	707-795-6283	bill@basin-street.com
CSW/Stuber Stroeh Engineering Group	J.T.	Wick	1301 Redwood Way, Suite 200	707-795-4764	707-795-0516	jtwick@cswt2.com
Petaluma Trolley	Lauren	Williams	12 North Napa Drive	707-763-7366	707-763-1827	PetalumaTrolley@webtv.net
City of Novato, City Manager	Rod	Wood	900 Sherman Avenue	415-899-1403	415-897-4354	rwood@ci.novato.ca.us
Petaluma River Keeper	David	Yearsley	521 Walnut Street	707-763-7756		dmy@sonic.net
K&LJF	Leang	Yee	PO Box 2006			
Golden Gate Bridge, Hwy & Trans. Dist., Planning Dir.	Alan	Zahradnik	Box 9000, Presidio	415-257-4475	415-257-4516	azahradnik@goldengate.org

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Enclosures

Preliminary Plans and Specifications

Price quotation, technical specifications, and literature has been obtained from the following potential equipment suppliers specifically for this proposed project at Petaluma Poultry Processors

Koch Membrane Systems* (ultrafiltration water recycling)
Zentox Corporation's Cascade Process (water reuse system)
Zenon Environmental Corporation (ultrafiltration water recycling)
BOC's Macron Loop Process Water Reuse System
Baader Johnson (enclosed bird washer)
Novazone* (ozone generators)
Cooling & Applied Technology (chiller cover)
Clean Water Technology* (air-flotation pretreatment system)

*** participated in the pilot-test project**